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JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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MEMBER

The Journal of the American Pharmaceutical Association

211 Church Street Easton, Pa. or **253 Bourse Building Philadelphia, Pa.**

CLARENCE OTIS BIGELOW

NEW YORK, N. Y.

Member New York Board of Pharmacy

CLARENCE O. BIGELOW

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JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. VII AUGUST, 1918 NO. 8

CLARENCE O. BIGELOW.

Despite his varied activities—financial, educational and commercial—Clarence O. Bigelow is primarily a retail pharmacist. Recently, it was the privilege of his friends to honor him on the occasion of the fiftieth anniversary of his entrance into retail pharmacy. It is now almost forty years since he purchased the drug store that he has conducted with such great success ever since. Honors, civic and social, have been thrust upon him; financial reward has come to him in goodly measure, and yet, with opportunities for other avocations, his real vocation is the conducting of a high grade pharmacy, that is neither ultra-professional nor crassy commercial.

Mr. Bigelow is a native of Phenix, R. I. but he obtained his early education and his first year of drug store experience in Springfield, Mass. In 1867, he sought his fortune in New York, securing a position with G. L. Hooper. In 1870, he attended the New York College of Pharmacy, became a registered pharmacist and ten years later purchased the business founded in 1838 by Dr. Galen Hunter. This business, he has conducted with marked success. Down in the old Washington Square district, he has inspired the confidence of the choicest residents of that aristocratic quarter. He now occupies a handsome building of his own and employs a staff of over thirty persons.

As is true of all really successful men, Mr. Bigelow has found time for outside activities. He is a member of a number of clubs; he is the president of the West Side Savings Bank and has been one of its trustees for over twenty-five years; he has been a member of the American Pharmaceutical Association since 1900 and was president of its New York branch during 1912–13. He has been a member of the New York State Pharmaceutical Association since 1898 and was a member of the committee that compiled the present edition of the National Pharmaceutical Syllabus.

But Mr. Bigelow's greatest service to Pharmacy has come from his work on the New York Board of Pharmacy and as treasurer of the New York College of Pharmacy. For fifteen years, he gave his splendid administrative talents first to the New York City Board and then, upon its organization to the all-State board. In the first critical years of that great body, he gave it the benefit of his ripe judgment and of his executive experience. His work for the New York College cannot be told in a brief sketch. He has given it his time, his thought and his aid. He has guided it as treasurer through many difficulties. He has so husbanded its finances, that it is now in a more flourishing condition than ever before in its history.

H. V. ARNY.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

THE CHICAGO MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE Sixty-Sixth annual meeting of the American Pharmaceutical Association is being held in Chicago this week, hence it is impossible to report on the transactions. The address of President A. R. L. Dohme, however, is printed in this number of the JOURNAL, but prior to the report of the Committee on the President's address and the action of the Association thereon. His views, comments and recommendations are therefore to be considered with the forthcoming report and action of the Association relative thereto. The minutes will be printed in the succeeding issue of the JOURNAL.

The various Sections provided excellent programs; many of the papers were prompted by the conditions brought about by the war, thus, the Scientific Section had among quite a number of other important contributions an illustrated lecture on "The Effects of War on Drug Cultivation;" a series of papers on the problems confronting the chemical and pharmaceutical manufacturers on account of the war conditions, and how these affect the retail pharmacists. The Women's Section arranged for a lecture on conservation. The program of the Section on Education and Legislation was outlined in the July issue; several papers on educational subjects were added. Both the Section on Practical Pharmacy and on Commercial Interests had exceedingly interesting programs and evidenced the careful study of the officers to make the sessions instructive and valuable for the retail pharmacists; in fact, the purposes of all the Sections were kept in mind and seldom have the papers better indicated the coöperative interrelation of all the work of the Association in the interest of pharmacists. The contributions of the Section on Historical Pharmacy not only recorded past events but applied the lessons for the present and future. So this much may be said, the work of this convention clearly evidenced that the American Pharmaceutical Association fully comprehends its mission for pharmacy and pharmacists and the reports and papers should convince all pharmacists and persuade them to affiliate and coöperate. As a result of the work done in Chicago the succeeding numbers of the JOURNAL will have value far in excess of the annual membership fee in the Association for every pharmacist.

E. G. E.

ADDRESS OF THE PRESIDENT OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.*

A. R. L. DOHME.

Fellow Members of the American Pharmaceutical Association:

For the first time in the history of this association your duly elected and installed president has not presided at your next annual meeting and for the first time in consequence your duly elected First Vice-President has assumed the mantle and responsibilities of that high and important office. I know how much you all loved Charles Holzhauer, whose untimely death has made it possible for me to be addressing you from this chair. I need not attempt to portray the many endearing sterling noble qualities nor the unfailing high principles which enabled him to make such a great success of his chosen calling—pharmacy—for you knew him as well as I did. He was well worthy of the great honor you bestowed upon him in electing him your president for he loved the American Pharmaceutical Association as he loved his own child and he was fully as faithful to the one as he has shown himself to be to the other. What a blessing it was, friends, that you did him the honor to elect him and thus enable him to fulfil one of his highest if not his highest ambition—president of the A. Ph. A.—before his death. Little did I dream when my good friend, John B. Thomas, nominated me to be your vice-president that I should ever have the honor and the privilege of appearing before you as your president. There is one thing I have found out after the death of President Holzhauer and that was that the great subject he hoped to try to realize and accomplish during his term of office was federated pharmacy. The vision so beautifully drawn and so splendidly presented by his predecessor in office, Dean Wulling, had made a deep impression upon his mind and heart. He felt as a good practical successful man that it was the fundamental problem to be solved for pharmacy if pharmacy hoped to better her condition and his beloved A. Ph. A. come into her own as the dear old Alma Mater of all American pharmacy. Several other past presidents have in a general way voiced the same sentiment. What more natural inference can be drawn than that I should as the representative of your duly elected president endeavor to carry out the ideas and purposes for the betterment of pharmacy that were uppermost in his mind. Especially is this true if entirely independent of what anyone else may have thought upon the subject, I had come to the conclusion that all other subjects or topics affecting the A. Ph. A. were secondary in importance and would later follow as a consequence to a federation of all pharmaceutical associations and interests in one large powerful efficient centrally and permanently managed association. But I will come back to this paramount subject later.

A. R. L. DOHME

We meet here to-day in the great metropolis of the west—Chicago—growing so rapidly and extensively and progressing so thoroughly and amazingly that one can hardly recognize it between visits. To congratulate Chicago is like

* Presented at First General Session of the Sixty-Sixth Annual Convention of the American Pharmaceutical Association, Chicago, Ill., August 13, 1918.

trying to paint the lily—wholly superfluous and as surely ineffectual because Chicago is congratulating herself daily by daily achieving great accomplishments and advances. This Association has met here twice before in its history, once in 1869 under the presidency of Edward Parrish and again in 1893 at the time of the Great Columbian Exposition under the presidency of Joseph P. Remington. It almost seems necessary when we meet in this center of energy and progressiveness that we must do something momentous in our own history and so it seems destined to be. Federation may have been conceived and heralded elsewhere but it is apparently the general hope and wish that it shall be born on the shores of Lake Michigan.

This is neither the time nor the place, nor am I the one, to criticize our association or any of its methods or activities. I am glad to be able to state that all of your officers, committees, editor, chairmen of committees and all connected with your Association have done all they could be expected to do and have accomplished all they could be expected to accomplish under the conditions and limitations imposed upon them by a divided pharmacy and a limited treasury resulting from almost a minimum of membership. Even if I wished to criticize any one, any branch of our organization, any method we employ in our work I could not conscientiously do it, because every one has done his full duty by our Association and deserves well of it at your hands. The trouble which confronts us and which prevents our doing what our Association should and could accomplish is not to be laid at the door of any officer, committee or other agency of the Association. It is the inevitable result of the system and conditions under which pharmacy and its many agents exist in this country. Can the A. Ph. A., I submit, do any real service for its 50,000 votaries in this country with a membership of 2700? Does it's "say so," its voice represent any strength or any power when it arises from only about five percent of its representatives? Was there ever a time and can you possibly conceive of a condition when 5 percent could sway 95 percent or even presume to voice their sentiments? Every president since the very early years of the 66 years old A. Ph. A. has appealed seriously and loudly for an increased membership and many of them have devised plans and some of them carried out plans for enlarging our membership, realizing that the income derived from 2700 members will not enable the Association to give *quid pro quo* to its members for membership dues. All progress from our present and past status and influence and power, must, as I see it, depend upon our merging our interests with the interests of all other national and state pharmaceutical associations, all of which are more or less in the same standstill position as we are, and from the time this occurs and this great achievement of federation is an accomplished fact, will our real ability to give more than a full *quid pro quo* be made possible. Why not then cease trying to temporize or busy ourselves with minor changes or details of organization and management and concentrate our efforts upon accomplishing federation of pharmacy? It has hence seemed to me, after a great deal of study of our Association's history and its present condition and its probable future under present conditions, that I must, if I am true to myself and wish to live up to my convictions, throw all my thought, energy and soul into a concentrated effort to make federation of pharmacy a reality and a living thing. To this end I named a committee upon federated pharmacy as called for by the resolutions resulting from the report of the committee upon President Wulling's annual address at Indianapolis, of which my dear friend, Prof. H. V. Arny, is chairman and from whom you will hear much of interest during the course of this meeting. However, before giving you my reasons for reaching this conclusion and my ideas of how it may be accomplished, permit me to pass in review a few other questions pertaining to pharmacy that have come to my attention during the past year.

PHARMACY CORPS IN THE ARMY.

It has been the aim of this Association for many years to secure recognition

for the pharmacists in the government service as you all know. Formerly in times of peace this was desirable but not essential. Its desirability then was based upon the fact that our profession, which we appreciate is the left hand of medicine if we may call the diagnosis of disease and the prescribing of the necessary medicine the right hand, was not recognized as worthy of any rank in the government service whereas its sister profession of medicine stood at the very top of rank in that service, the surgeon-general of the army holding the rank of major-general. Certainly if the right hand is worthy of the high rank of major-general the left hand of the healing of the sick is worthy of the rank of a captain or a lieutenant. Practically all the leading countries of the world realize and appreciate this and grant some recognition and consequent rank to their pharmacists in their government service.

But now when we are engaged in the most terrible and destructive and extensive war of all times and millions of our men are exposed to disease and injury and the left hand is almost as much needed daily as the right hand and the man who wields the left hand should have some standing and rank and consequent self-respect over and above just a kitchen-detective, a harrier or a hostler. Our army as at present constituted has a medical corps, a veterinary corps, a dental corps, an ambulance corps, a sanitary corps and a chemical division but no pharmacy corps. In order to get some idea of what was the nature of the pharmaceutical service in the army, our committee on the status of pharmacy in the army and navy sent out questionnaires to the several camps and cantonments in this country. How deplorable this service is the report of that committee through its chairman, Mr. Hilton, will make plain to you. It is practically no service in pharmacy at all that our boys who are giving their lives and their health for their country are receiving. A bill to give the country the needed pharmaceutical service and enable the pharmacist, who has had a college course and graduated in pharmacy, to occupy a position of self-respect and rank somewhat commensurate with the education and importance in the work of healing the sick was introduced by a pharmacist, Mr. Edmonds of Pennsylvania; and a hearing was had before the House Military Committee on that bill, and the room was crowded with representative members of the profession and of this association. All to no avail—for the surgeon-general, Dr. Gorgas, is opposed to a Pharmacy Corps in the army and until he undergoes a change of heart we were practically told it is useless to attempt to pass such a bill. All efforts to convince him or to change his view have been futile. His position is that present method and service are sufficient to handle the situation. When we consider that our Continental Army in 1776 recognized pharmacists and gave them rank, it seems that something must have gone wrong in the progress of pharmacy when a century and a half later we find ourselves less thought of in the government service than were the wielders of the mortars and pestles of Revolutionary days.

While we have allowed nothing to prevent our working as hard and earnestly as we could to secure recognition for pharmacy and while we believe the American Medical Association has not opposed recognition of pharmacy in the government service, if we can judge by their comments in their official journals, yet we have been unable to accomplish our purpose at this critical juncture in our country's history despite the fact that our object is the laudable and patriotic one of helping to give our soldiers the efficient service they undoubtedly need and need badly. Now there is a reason for this—there must be a distinct and radical reason why we cannot win recognition by our government. Doubtless many of you have your own idea of what this reason is. I know I have, and I am going to give it to you. Lack of united spirit and action of pharmaceutical bodies, *i. e.*, lack of federated pharmacy and a united front and spirit. There are too many viewpoints at variance with one another in our ten national pharmaceutical associations now existent and too much self-interest and jealous-mindedness among and between them. I can testify to this from my own experience since studying and corresponding upon this great question of federation.

THE FUNDS OF THE A. PH. A.

In studying these funds I have been convinced of their utopian rather than utilitarian purpose and effect. We have ten such funds whose aggregate principal sum as of January 1, 1918, amounted to $67,831.47. These funds are:

1	Life membership fund (interest from which is available for association expenses but has not been so used and is merely accumulating interest)	$22,644.60
2	Centennial Fund (interest from which is available for defraying expenses of any member for a research work undertaken by him, very seldom availed of and mainly used in accumulating interest)	3,057.68
3	Endowment Fund (not available until it reaches $25,000 when half of its interest income is available, hence of no use for many years to come, possibly for our grandchildren)	6,864.30
4	General Fund (no known object or purpose stated, merely capital invested and at a very low rate of interest)	10,000.00
5	A. Ph. A. Research Fund (not available until it reaches the sum of $100,000, when its interest becomes available. This will probably require about 20 years to become available)	11,102.55
6	Ebert Legacy Fund (not available until it reaches $10,000 when interest becomes available. This will require about 25 years and hence does not interest this generation)	4,324.47
7	Ebert Prize Fund (interest available annually for prizes, otherwise interest added to principal)	1,133.27
8	Procter Monument Fund (to construct a monument to Wm. Procter, Jr., which monument should have been erected some time ago)	8,486.20
9	Rice Memorial Fund (no purpose, merely a remnant with a distinguished name attached)	178.40
10	Motter Fund (this was an experiment that failed and should be consolidated with the Rice Memorial Fund)	40.00

A study of these funds induces me to offer a suggestion regarding them. Only two or three of them, the Centennial Ebert and Procter Funds, have specific purposes and can be and are at times used for an intended purpose. Apparently all the rest are either mementos or provisions for the future bearing interest and be it said very small interest but serving practically no useful purpose. Those that are invested in bonds, except those invested this year in Liberty Bonds for patriotic purposes, might be better invested, for they return the minimum of interest. I would suggest that at the proper time they be reinvested in securities that are safe but yield a better interest return. As to the disposition of these funds I feel that it is high time they be taken in hand and be made to serve some real purpose to our Association other than earning savings bank interest. My suggestion for their use is based upon my belief in the adoption of federated pharmacy and in that connection I would use such of these funds as could by action of the Association be made available as to their principal sum to furnish and equip the proposed central offices and laboratories, etc., and make them available for the use of all the members of the federated association to be formed. They would then serve a very practical and useful purpose to all members, and when we have a successful federated association we will have enough income to supply all the needs for our expenses and will not then have occasion to provide for future contingencies, as is the case now with these funds.

PRESENTATION OF PAPERS AT SECTION MEETINGS.

It has been my experience and observation during the 27 years I have been a member of this Association that the average member in attendance upon our meetings has too much listening to do and too little opportunity to speak his mind. This is the result of our custom of having papers read in full by their

authors. My suggestion is that papers presented to sections be required wherever possible to be presented in abstract and not to occupy more than ten minutes for their presentation. This can be done by stating the purpose to be accomplished and the thought that led up to this, the method or arguments adduced to accomplish it and finally the actual results or conclusions reached. Then have the author or chairman open the discussion and endeavor to have as many members present participate in the discussion. By this means members will become more interested in the meetings and the proceedings will prove more interesting.

U. S. P. REVISION.

Since our last meeting the chairman of the Revision Committee, also one of our ex-presidents, Prof. Joseph Price Remington, has passed to the great beyond and the committee has elected his successor, Prof. Charles H. LaWall, our president-elect. These are important days for pharmacopoeia revision since so many of our drugs and chemicals formerly secured from abroad are now either not available at all or are being made in this country and hence require modification in regard to alternatives or standards. Our committee on U. S. P. revision should carefully consider this and make such recommendations as seem to them advisable.

HOUSE OF DELEGATES.

I feel that our state associations are in need of coöperation and harmonizing for various reasons. As a basis for improving the grade and quality of our future pharmacists, an uniform and generally adopted prerequisite law providing that only graduated pharmacists shall be licensed to practice pharmacy should be adopted by every state in this country. This can best and easiest be accomplished by either forming an association of state pharmaceutical associations or by making the present House of Delegates of the A. Ph. A. a state association body and thus accomplish the prerequisite uniformity and universality in the House of Delegates. In matters of legislation and state laws, in pure food and drug matters, narcotics, formula exposure, etc., etc., the action of all state associations in harmony and coöperation in the House of Delegates would be of service and value to all pharmacists if in no other way than by securing uniformity of constructive legislation and by practical enforcement of laws. An association of state associations has been suggested as a means of bringing this about and in the event that federation were accomplished and the House of Delegates became the main body of the federated association, then the organization thus affected could become a separate association with representation in the federated body similar to other national pharmaceutical associations.

IN MEMORIAM.

The year 1917–1918 has been unusually severe upon pharmacy in the loss of her influential men. First we lost our former general secretary of so many years, Charles Caspari, Jr., a man who was not only most representative of high ideals and broad views in pharmacy but who was perhaps the most unselfish representative of pharmacy in our ranks. Always doing things for some one else, never thinking of himself. What a wonderful memory to leave behind in the hearts of his friends! A wonderfully well posted man and a generally beloved man. When he said a thing or expounded an opinion it was sure to be just about one hundred percent correct. His services to this association can hardly be estimated or appraised for they cover so many branches of our work. Not only pharmacy but the world was a loser when the light of Charles Caspari, Jr. went out. I knew him well almost from the day I was born, for he was a clerk in my father's drug store and later I was an apprentice in his pharmacy. His were the admonishments of a man who, being permeated with a genuine love for his profession, instilled that love into all who came under his influence in any way. It was a privilege to be a pupil of Charles Caspari, Jr., and an asset worth much to its possessor through life. It will be many a day before we shall see his like again.

Charles Holzhauer realized the ambition and hope of his life when you honored him by electing him president of this Association and it is a genuine grief to me that he could not have lived until this day to stand here instead of myself to tell you what his many successful years of active life in pharmacy had enabled him to absorb for his and your benefit. He will go down into pharmaceutical history as a man who spent all his life in the practice of his chosen profession and beginning with nothing but determination, high ideals, sterling honesty and right dealing and living made a striking success of his life and his business. His life and career should be used as an example of what a young man can accomplish if he consistently carries out the highest principles of honesty and industriousness, persistence and high ideals. Would there more Charles Holzhauers in pharmacy to-day!

Joseph Price Remington—the hub around which the wheel of pharmacy has rolled for a generation. The man who received the torch of pharmacy from Parrish and Procter, first lighted by them in this country as a living profession and science, and who carried it successfully and ennobled it during almost fifty years. The man whose smile was the quintessence of optimism and who probably has taught more young men pharmacy than any other man in the history of pharmacy. The man who also carried the torch of American pharmacy out among the nations and made it known and respected. The man who took the great responsibility of editing the United States Pharmacopoeia from the hands of that remarkable genius, Charles Rice, and so maintained the high standard set by Doctor Rice that it has become to-day one of the great books of pharmacy in the world.

All three of these men represent milestones and oases on the high road of pharmaceutical progress and their loss all in one year will for a long time be felt by pharmacy. May I request that, due to their great prominence in their profession and the place in our hearts that has been made vacant by their death, we all rise in our seats as a tribute of love and respect to their memory.

Remington Honor Medal.—The New York Branch has, with consent of this Association, created a fund which will enable it to present annually a medal, in memory of Prof. Remington, to that person who has in the previous year done most to advance further pharmacy and the ex-presidents of this Association are to be the committee to award it.

Société de Chimie Industrielle.—A new association, the French Society of Chemical Industry, has been formed during the past year and sent greetings and a tender of exchange of journals to this association. It is one of the many instances of the rise of a new development as the result of this terrible war now devastating the earth. Like our own marvellous development of chemical industry in this country since the outbreak of the war, it has stepped into being to supply the need once supplied by the German Chemical Industry and, like ours, it will doubtless largely replace it after the war is over. It was my great pleasure and privilege to convey to this new association the greetings and good wishes for success of this Association.

PHARMACEUTICAL EDUCATION.

In order that pharmacy may attain to a position somewhat more approximate to medicine in influence and position than has been the case during the past quarter of a century several things seem necessary.

First: That the number of pharmacies and pharmacists be reduced and that the quality of both be raised. This would result in more pharmacies with better incomes for each and less corner drug stores and apothecary shops.

Second: That a prerequisite law be passed in every state in the United States, so that only graduated pharmacists be granted the license by the state to practice their profession in that state.

Third: That the entrance requirements to all schools of pharmacy in this country be made more rigid so that a recognized state high school diploma be made mandatory by all such schools of pharmacy for matriculation into them.

Fourth: That the courses of study leading to a degree in pharmacy be increased in number and extent, so that the degree will cover more than the usual subjects of chemistry, pharmacy and botany but include besides microscopy, pharmacognosy, materia medica and practical pharmacy and dispensing, also courses in ethics, psychology, physics, biology, geology, political economy, modern languages, advertising, accounting and merchandizing, so that the course will require at least three and preferably four years and when completed will be worthy of the degree of Doctor of Pharmacy and be commensurate with that of doctor of medicine, doctor of divinity, etc.

Fifth: That two degrees be offered by schools of pharmacy for a limited period after the inauguration of these changes in the curriculum of schools of pharmacy: one Phar.G. or graduate in pharmacy, granted after completion of a two years' course as heretofore and the other Phar.D. or doctor of pharmacy granted after completion of a three or four years' course as above outlined. After ten years, however, only the degree of Phar.D. be granted covering the completion of the full three or four years' course from October to June.

FEDERATION OF PHARMACY.

Having touched upon these several subjects, it now becomes my duty to bring before you my message and the real story I have to tell. In studying the history of this Association, I find that it was conceived in 1852 in a tolerant spirit of broad-minded consideration for the success and welfare of all branches of pharmacy. It was from its birth intended to be true to its name and be in fact the American Pharmaceutical Association—an association so broad and comprehensive as to include every branch and department of pharmacy in America. Both its sister associations, the American Medical Association and the American Chemical Society, have as you observe the same broad comprehensive names. At our meetings the teacher, retailer, manufacturer, wholesaler, broker, clerk, salesman-representative, editor, publisher, etc., etc., have always been welcome as members and have been accorded every opportunity to have their say and be heard. Without going into the details of our subsequent history or into that of our just mentioned sister associations, suffice it to say at this time that the A. Ph. A. finds itself to-day, after sixty-six years of sterling vigorous life devoted to the welfare and advancement of pharmacy in all its branches, in the unfortunate and unenviable position of having only 2700 members out of about 50,000 pharmacists in this country as compared with about 65,000 members of the A. M. A. out of about 150,000 physicians and 10,000 members of the American Chemical Society out of about 18,000 chemists in the country. Practically every president of this Association has, I find, dwelt at some length upon the importance of increasing our membership, and one of them wrote personally thousands of letters in an effort to personally accomplish this. All, however, to no purpose, for although new members are secured every year and one of our enthusiastic and devoted members even gets practically the whole graduating class of his college to join the A. Ph. A., yet the newly added members only about offset the losses by death, resignation and dropping for non-payment of dues during the year. This is a fundamental weakness of the A. Ph. A. and there must be a reason for it. No association can keep alive and efficient and progress if it does not secure and hold more than five percent of its available members. To my mind the reason is lucidly clear. The American Medical Association and the American Chemical Society secure and hold members in great number because they give an equivalent in real value and service to their members in return for the membership fee. All of you know that the journal alone of each of these two sister societies, without considering the real support, protection and service given their members in various ways, is more than an equivalent for their membership fee. Medical men highly esteem the journal of the A. M. A. and chemists could not do their work properly without the *Journal of Industrial and Engineering Chemistry* and the *Journal of the American Chemical Society*. Hence they join without much effort to secure them as members and they remain members when once they have joined the association. Comparisons are always odious and I hence refrain from a statement as to what our members secure in

return for their membership. I appreciate fully that our journal could not be better edited, and our Year Book is a valuable book for many members. Let me confine my remarks upon the two publications to these two statements: we have not enough income and means to make the journal better than it is and we have not enough circulation to make it a popular advertising medium to produce revenue; and our Year Book appears too late to make its contents news. No large national association with only 2700 members can produce a service for its members that justifies the payment of the dues. Our members are largely members out of love and respect for the grand old A. Ph. A. which has kept the fires of pharmaceutical science and ethics burning these past 66 years. But during these 66 years pharmacy has changed radically as a trade and profession. Has the A. Ph. A. appreciated that fact and acted upon it? Pharmacy is to-day more largely merchandizing than it was not only 66 years ago but as late as 20 years ago. The great advances in pharmacy are made in the research laboratories of the pharmaceutical and chemical manufacturers and due to the facilities of these laboratories in controlling and standardizing the strength of these products, the average retailer is not in a position, in most cases although he may desire to do so, to assay and assure himself of the proper quality of his goods. Besides this the successful stores, be they chain stores or not, carry many side-lines, and to be successful a pharmacist must be a capable merchandizer which means buy at the right time and price and know how to make inducements to customers to buy his goods. The day for the highly skilled pharmacist, who has a full line of the necessaries for compounding prescriptions and a high standing in his profession that logically gives him the right to expect people to flock to his store for that reason to have their prescriptions compounded, is a thing of the past. It was because the A. Ph. A. failed to realize and appreciate this and act upon it that the N. A. R. D. was formed and its pronounced success as compared to the A. Ph. A. in number of members and consequent service rendered to its members is well known to you all.

"Let us Face the Facts" is the terse expression used by one of our most distinguished and highly esteemed ex-presidents for the growth of mercantile as against scientific pharmacy in the retail drug trade of to-day. To this I say Amen, and the way to "face the facts" most effectively is to bring about conditions in pharmacy that will not let the material side of pharmacy take the bit in its teeth and run away with the professional side, for then we will lose our ideals and our inspiration for progress in our profession; nor let the dreamers of the ideal pharmacy of the last century blind themselves and all of us against meeting the instruction and course of thought and state of mind necessary to meet the inroads of the chain store and drug department store. However, there is not room for both the A. Ph. A. and the N. A. R. D. if the maximum of service and the maximum of progress in the science of pharmacy are to be achieved. Both associations as now organized and conducted are working more or less at cross purposes and not in sympathy. They thus divide their influence, their strength, standing and their potentiality in half and when to this is added the separate activities, influence, power and potentiality of the wholesale druggist, the manufacturing chemist and pharmacist, the physician supply pharmacist, the proprietary manufacturer, etc., the influence, power, strength, and potentiality of each one of them has been so much divided that they do not and cannot produce enough income to give proper service return to members for their membership fees, to produce enough influence to secure a pharmacy corps in the army or prevent undesirable or secure desirable legislation in pharmacy, to produce enough power through money resource and standing to secure the publicity so much needed to educate the public up to knowing what the dispenser and compounder of medicines really means to their life and health.

Has it ever occurred to you to what little extent the pharmacist ever receives any publicity in the press of to-day, and how little the general public knows about his work? About the only kind of publicity he receives is of the undesirable sort

such as when some would-be suicide buys from him some carbolic acid or mercuric chloride. Under the federation of pharmaceutical associations as proposed there would be a department which would write up the achievements of pharmacy, her place in our every-day life and the good things pharmacists do and have always done. Only by the financial income made possible by federation could competent men be secured to specialize on such publicity systematically all over the land.

As desirable as it may be to "face the facts" that pharmacy is fast becoming a merchandizing business rather than a profession in order to get the correct viewpoint of the pharmacy of to-day and as necessary as it doubtless is to develop in pharmaceutical training and experience a talent and a knowledge for successful merchandizing, let me warn you that there is as well grave danger ahead for pharmacy if she deserts her mortar and pestle for the bargain counter and paying specialty. If the successful drug store of to-day is apparently the store of the chain or the store of the specialty controlled in either case by a large corporation; is such a store the proper one to maintain the purpose and need so well instilled in the mind of the physician and the public? Must we not, in other words, maintain our facilities and practice and reputation for compounding prescriptions if we hope to maintain the standing of our profession and its future life? Is not the growth of physicians supply manufacturing pharmacists in direct ratio to the decadence of the prescription counter at the expense of the bargain counter? If this is so—and I have no doubt that many of you agree with me that it is—then it seems wise to have our proposed federated association impressed with the importance of keeping the fires of pharmaceutical science burning at all hazards even though these be tempered with the merchandizing training needed to hold the public interest and attention. When the prescription threatens to become a lost art then will pharmacy be a dead science indeed.

Let us consider the journal so ably edited by our representative pharmacist and teacher, Prof. E. G. Eberle. He is doing the very best quality of conscientious progressive work that can be done. But the journal does not arouse much enthusiasm nor does it effectively stimulate membership nor does it bring up-to-date news in discovery or practice. It replaces our proceedings and spreads out over one year the occurrences of our annual meetings with a certain limited amount of special articles or editorials, branch meeting news, etc. When this reaches the member it is mostly old news, it occurred anywhere from thirty days to twelve months ago. This is not the editor's fault—it is the unfortunate condition created by the association and council when it did away with the Proceedings. As for me, give me the old volume of the Proceedings every time where I can find what I want in a moment and have it all compact. The result is the journal has but little circulation except among our own members and enjoys in consequence but a limited advertising value and secures but little income from this important source.

The same applies to the N. A. R. D. journal to some extent, and both editors are expected to edit the journals and secure the advertisements to make it self-sustaining and neither of them can successfully accomplish both and do not in consequence. In journals as in pharmacies we have by far too many of them for the good of the profession and for any to be of the quality they should be. Under federation with a membership of 25,000, think of what a journal the Association could produce and what a real chance Professor Eberle would have to produce something more nearly in keeping with his ideals and with the journals of the A. M. A. and the A. C. S. Then the Year Book, once the report on the progress of pharmacy of the old Proceedings. Surely the quality of the work that Professor Arny is turning out leaves nothing to be desired. It is a splendid achievement and one of which this Association can well be proud. As a report on the progress of pharmacy it simply cannot be improved upon. But it reaches our members anywhere from one to three years late. Most of our members and most

pharmacists probably do not use it to the extent they should, but those that do are getting very old news and they are not as satisfied as they should be.

This is not Professor Arny's fault, for he is a very busy man and he can put in only his spare time to do this terrific amount of work and he simply cannot do more than he does nor could anyone else unless he were paid to devote all his time to the work with plenty of assistants working under the same conditions. This we cannot afford to do and so we must do the best we can under the inevitable handicap produced by the limited income produced by only 2700 members.

Let us face the situation as to what we propose to accomplish by federation; of what does it consist and how can we bring it about in a successful, useful and practical way.

We propose to accomplish, by federating all national and state pharmaceutical associations into one large association, the following important things:

1. A largely increased representative membership representing practically all those interested in and engaged in pharmacy in all its branches. As there are about 50,000 such available members we should secure at least 25,000, and if my ideas and plans are realized I feel we will get 35,000.

2. Unity of purpose and action in all matters pertaining to legislation, education, publicity, ethics, standards, methods, economics, and efficiency in pharmacy.

3. Real service to all pharmacists in the matter of a real leading journal and of permanent management and activity by competent well-paid men in laboratory work, legal advice and protection, expert advice, employees, trade marks and patents, exchange of unsalable goods, support and backing when unjustly attacked in press or court. We will, in short, be able to give more than a real *quid pro quo* in return for membership fees so that membership in the federated association will be a hall mark in pharmacy and be necessary to enable a pharmacist not a member to successfully compete with one who is a member.

4. A gradual elevation of the quality of those who enter the profession by a unanimous decision so to do. This is not possible with the divided interests that exist to-day, but quite possible when all favor it, work for it, and stand for it. This will gradually but effectively create increased recognition of the profession by the public and the law-making bodies of the nation.

5. Increased prosperity for the individual members in their business, due to decreased competition, increased efficiency and service, and less capital required to do business, due to the coöperation of all for the common good.

Federated pharmacy, as I conceive it, consists of a consolidation of all national and state pharmaceutical associations into one large association with a new constitution and by-laws, with a permanent set of offices and laboratories, library and bureaus in one building either owned or leased by the association and permanently managed by a Board of Control consisting of three well-paid, competent men. It means that all these national associations and state associations shall continue their individual existence as they are now and manage and direct their own affairs in their own particular line just as they have been doing by their own officers and organizations as heretofore. Thus the wholesale druggists will continue to be known as the N. W. D. A. or the Wholesale Section of the federated association and the same for the retail druggists which shall be known as the N. A. R. D. or the Retail Section of the federated association, etc. These will be analogous to the several sections of the A. M. A., as for instance the Gynecological Section of the A. M. A., etc. I use the words Federated Association because while I fully believe the name of this Federated Association should be and will be the American Pharmaceutical Association, I appreciate that this is a matter which the Federated Association, when formed, should itself decide. All matters, however, pertaining to the wholesale drug trade will be acted upon and decided upon in the meetings of that section of the federated association and their action shall be final and not subject to any review or action by the Federated Association and the same applies to the N. A. R. D. section, the manufacturers' section, the A. C. of Ph. F. section, etc. All matters, however, pertaining to general pharmacy shall be taken up, considered and acted upon in the House of Delegates and Council or upper chamber

of the Federated Association, such as legislation, ethics, publicity, service, law, relations to the public, to other associations, the state, the nation, etc. Wherever an united front is needed to accomplish a needed reform or law, the defeat of undesirable legislation or a desirable purpose helpful to pharmacy, the consideration should be had in the House of Delegates of the Federated Association. Membership in the Federated Association shall be individual and shall entitle the member to all publications and services of the association. If the sections determine to offer special services to their members for which they will charge special fees this will of course be quite proper; and for section memberships corporations, as well as firms or individuals may be eligible. Membership in the section also carries membership in the association but in case of corporations or firms these must name an officer or member of their firm or company to represent them in the association. Instead of going into all the details of the proposed federation I will submit herewith as part of this address a tentative plan for federation, which I have drawn up to serve as a practical basis for discussion of an actual method of effecting the proposed federated association and which I will read.*

From this you will see that practically everything is provided for and that a list of bureaus and laboratories is proposed which will render the services to which all members are entitled. Let me just refer especially to a few of these. The bureau of chemistry and pharmacy will be a laboratory where members can send their preparations or products to have them examined, tested or analyzed as to their label, literature, excellence of product, correctness of assay or strength, etc. This will be an advantage because they will know that it is being done by a friendly though accurate and just agency which will advise them fully about it and in confidence.

The exchange bureau for unsalable goods will enable them to exchange unsalable goods for salable goods and thus reduce their stock and with it the amount of money tied up in their business. Thus in many ways will it be possible in an association of which all pharmacists are members to be of service and assistance to members who will feel that they have back of them in this service the entire pharmaceutical profession.

The state associations will be integral parts of the federation, and membership in the federated association will entail membership in the state association. Whether they will be affiliated through the House of Delegates as such or whether they will be asked to form an association of state associations and have this represented in the House of Delegates by five delegates, just as are all other national associations, is a matter which the federation must decide. To my mind it would be preferable for all the state associations like all state boards of pharmacy to form a national association of state associations and that this should meet as a section of the federated association attended by delegates duly appointed from each state association. They could in such an association harmonize many of their differences and points of opposition in prerequisite laws, licensing of pharmacies or pharmacists or both; educational requirements, etc., etc. They would have their voice in the federated association by being represented by five delegates similar to every other national association. Thus would the influence and organizing power of the federated association be much increased, spreading out and reaching into every state just as the A. M. A. does, only in case of the latter this is more complete still and extends to the county medical association, *i. e.*, subdivision of the state. We have provided in a way for this county association by the establishment of our local branches, which would of course be part of our association and eventually become subdivisions of the state associations.

We can bring about this badly needed and greatly to be desired federated association by all those engaged in pharmacy or any of its branches deciding to be willing to give and take and to agree that to be part of an united fraternalized profession is much better than to think only of ourselves and our special interest

* See September issue.

and let the others look after themselves. If we all agree not to want everything just our own way but accept a state of mind and organization that offers benefits to all that are impossible when we each paddle our own canoe, no reason exists why we should not federate our interests and in helping ourselves also help the other fellow. Then we can form such a federated association and develop an organization and a management as will enable pharmacy to hold its own with any other association or profession and secure many of the advantages and needed recognition now denied us because we are so unharmonious and uncoöperative.

Each association should then name delegates to represent it and act for it at a convention of associations called for the special purpose of forming a federated association, provided this is not accomplished as I hope it will be at the special meeting of our House of Delegates called for that purpose at this meeting Wednesday, August 14, at 4.30 P.M. My reason for hoping and believing that federation should be decided upon and entered upon now is that the time is opportune, the moment psychological and the world-spirit in harmony with federation and consolidation.

When you consider what medicine was before there was a large united A. M. A. and what it is now and what its relative influence and power was then and is now; and when you consider what a more or less useless and theoretical thing the American Chemical Society was once and what a powerful force for constructive good and influence it is now, you must appreciate and see what possibilities in growth, strength, influence, power and standing lie before pharmacy if she will only do as they did, and federate all her interests into one large association presenting a united front to all questions and problems that confront it. We are now in the position of the thirteen separate states and like them a prey to any united agency attacking us and in consequence usually, as in case of our pharmacy corps, laid low in the contest. When these thirteen states became the United States they surmounted all obstacles, accomplished many great things and eventually as to-day have become the greatest uplifting and constructive force in the world for the welfare of mankind and the struggle for liberty and the rights of man. Shall we remain the thirteen states or shall we become the United States, that is the great question which I now leave in your hands and in your hearts?

TO UNIFY MEDICAL NOMENCLATURE.

The medical section of the Council of National Defense has taken the initial steps toward establishing a uniform medical nomenclature and terminology in official and unofficial circles. The plan is to have the surgeon-generals of the Army, Navy and Public Health Service appoint representatives to confer on the matter of agreement concerning the names of diseases and injuries, as well as symbols, abbreviations, etc., and after a tentative list has been prepared it is proposed to call together representatives of the leading national bodies with a view to obtaining general agreement. It is expected that if the Government adopts a uniform nomenclature, the 20,000 doctors now in the military and naval service will, when they return to civil life, bring the standard terms into general use throughout the country. While this scheme is excellent as far as it goes, it appears to suffer from the limitations of provincialism that seem inseparable from nomenclatorial reforms started in this country. Apparently it has not occurred to its promoters that medical English is not monopolized by the United States, and that in seeking a uniform nomenclature the coöperation should be invited, on equal terms, of the medical authorities of Great Britain. This is especially desirable at the present time, in view of the fact that many American doctors are serving with the British forces.—*Scientific American.*

DISTINCTIVE PROPERTIES AND CLASSIFICATION OF ORGANIC AND COLLOIDAL SILVER COMPOUNDS.*

BY TORALD SOLLMANN.

CONTENTS.

1. Objects.
2. Tests and Data.
3. Classification.
4. Distinctive Properties of the Drugs.

1. OBJECTS.

A large number of silver protein compounds are now on the market, and it is desirable to classify these in a logical manner. Collargol, Argyrol and Protargol, for instance, evidently represent quite distinct types. May the other compounds be arranged under these three types, or are further groups necessary? What should be the criteria for a classification? The following investigation is intended as a partial and tentative answer to these questions. It includes the application and the discussion of a series of tests and data to the silver-protein and colloidal silver compounds accepted in "New and Non-official Remedies"[1] and of a few which have not yet been accepted.[2]

2. TESTS AND DATA.

Condition of the Silver.—Silver ions precipitate ordinary proteins and are therefore highly irritant to the tissues. Compounds containing their silver in non-ionized or "masked" or "colloidal" form do not precipitate and therefore largely avoid the irritation. This is the main object in the therapeutic use of these silver compounds. Various precipitant reactions may be used as tests for free silver ions. The most convenient, perhaps, is the precipitation of chlorides. A modification of this will be described later.

It may be stated now that all but two of the preparations contain all of their silver in non-ionized form; and these two (Albargin and Roche Silver Nucleinate) contain only a small, but not negligible, amount of ionized silver, presumably as a contamination.

Total Silver Content.—The quantities claimed by the manufacturers are shown in Table I. It will be noted that the content of the three typical compounds, collargol, argyrol and protargol, are distinctive; and the most of the other compounds approach one or the other of these types. It remains to be seen whether this coincides with other distinctive properties. Actually this is very generally the case.

Protein Component.—This is not very important, since it is practically a mere vehicle. Some of the manufacturers prefer to keep its nature secret, as a valuable manufacturing asset. Others follow the much more reprehensible course of giving misleading names to their proteins. This abuse is not easily stopped, since there is no known method for identifying the protein in the finished product. The data, as far as known, are shown in Table I.

* This investigation is partially supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

[1] Electrorgol was not included, because of its very low silver content.

[2] Silver proteinate, Heyden; Silver nucleinate and proteinate, Roche; Solargentum, Squibb; and Silvol.

TABLE I.—TOTAL SILVER CONTENT, AND PROTEIN COMPONENT.

Drugs (arranged in order of silver content).	Claimed percentage of silver.	Claimed protein base.
Collargol	78	
Cargentos	50	
Argyrol	20–25	Vitellin (in reality probaby denatured egg albumen)
Squibb Silver Prot	19–23	Gelatin
Roche Silver Nucl	20	Probably denatured serum albumen
Solargentum	about 20	Gelatin
Silvol	20	?
Sophol	20	Methylen nucleinic acid
Albargan	15	Gelatin
Novargan	10	Albumin(?)
Protargol	8.3	Albumin(?)
Heyden Silv. Prot	8.3	Albumin(?)
Roche Silv. Prot	8.0	(?)
Hegonon	7	Albumose
Argonin	4.28	Casein

Antiseptic Efficiency.—The silver-protein compounds are used almost exclusively on mucous membranes, for antiseptic or astringent, or for demulcent effects. A classification according to antiseptic efficiency would be desirable, but does not appear feasible at present. The results of culture experiments cannot be transferred with confidence to clinical conditions; and no satisfactory technic has been developed for life-tests.

Irritation.—This is perhaps the most important criterion for a clinical classification. It is easily judged by placing a few drops of the 1 : 10 watery solutions[1] in the nostrils, and in case of doubt also in the conjunctival sac. The method is subjective and incapable of absolute quantitative expression. Nevertheless the differences are sufficiently striking to permit arrangement into three groups, as in Table II.

The data refer to a 1:10 aqueous solution in the nostrils. Those which were also tried in the conjunctiva are marked **.

TABLE II.—IRRITATION.

No irritation.	Slight but distinct.	Marked irritation.
Argyrol	Protargol	
Argonin (5%)	Heyden Silv. Prot.	
Silvol**	Cargentos	Albargin[2]
Sophol	Silv. Nucl. Roche	
Squibb Sil. Prot	Silv. Prot. Roche** (very slight[2])	
Novargan	Hegonon** (very slight)	
Collargol		
Collargol Old (5%)		
Solargentum		

Albumen Precipitation.—This is in a sense an index of astringency. However, it was observed that some non-irritant preparations may, nevertheless, give a

[1] *1 : 10 Solution of the Silver Salts:* 0.5 Gm. of the salt is dissolved in 5 Cc. of distilled water. This solution is also used for the egg-test, the absorption test, and the color index.

[2] Albargin gives a precipitate with sodium chloride. The filtrate from this appears less irritant. This suggests that the irritation is due largely, if not solely, to free silver ions.

precipitate with albumen. This is most conspicuous with silver. It may be that, in this case, the precipitation is due to a change of the colloidal state of the silver compound rather than in the albumen.

However, the test as elaborated, at least helps to distinguish certain of the compounds that are otherwise closely related. It is also an objective confirmation of the distinct though slight astringent action of all the members of the protargol type (Protargol, Roche and Heyden Silver Proteinate; and Hegonon); and of the marked astringent action of those containing free silver ions (Albargin; Roche Silver Nucleinate).

Technic of the Egg Test.—About $^1/_2$ inch (about 2 Cc.) of undiluted egg white is placed in a test-tube. To this is added 1 Cc. of 1 : 10 solution of the silver salt. They are thoroughly mixed by shaking, then allowed to stand for about 15 minutes, and then diluted with 15 Cc. of water. If this is too deeply colored, more water may be added. (The egg-white must be added undiluted, as stated.) The results are shown in Table III.

TABLE III.—ALBUMEN PRECIPITATION.

The mixture remains clear:	*The mixture is distinctly turbid:*
Argyrol	Protargol
Squibb's Silver Prot.	Novargan
Solargentum Squibb	*There is a distinct precipitation:*
Collargol	Heyden Silver Prot. (curdy)
The mixture is nearly clear:	Cargentos (very fine)
Argonin	Silvol (very fine)
Sophol	Silv. Nuclein Roche (curdy)
Silv. Prot. Roche	*Abundant curdy precipitate:*
Hegonon	Albargin (2 samples)
	Unsuited for test
	Collargol, old sample

Adsorption.—The difference between the preparations are presumably based largely upon differences in their colloidal state. It was attempted to demonstrate them by the behavior toward adsorbents. "Permutit" was found to have no distinct effect on argyrol solutions and very little on protargol. "Lloyd's reagent," however, showed characteristic differences in the decolorization for the members of each group, although it had no apparent relation to a broader classification.

Technic.—One Cc. of a 1 : 10 solution of the silver salt is diluted with 0.5 Gm. of "Lloyd's Reagent" (Hydrated Aluminum Silicate), allowed to stand for a few minutes, and filtered. The color of the filtrate is noted.

The degree of decolorization is shown in Table IV.

TABLE IV.—ADSORPTION OF COLOR BY "LLOYD'S REAGENT."

Practically completely destroyed.	Considerably destroyed.*	Little, if any, decolorized.
Argyrol	Protargol	Cargentos
Albargin (2 samples)	Silv. Prot. Heyden	Collargol
Argonin	Novargan	Sophol
Collargol, old sample	Silvol	Solargentum Squibb
Silv. Nuclein Roche	Hegonon	Silver Prot. Squibb
Silv. Prot. Roche		

* These are arranged in order of decreasing adsorption, the protargol filtrate being the least colored, and hegonon the most.

To a portion of the filtrate (further diluted if too dark) is added a drop of 25% sodium chloride, to reveal free silver ions. (Silver nitrate, even in very dilute solution, is not adsorbed by Lloyd's Reagent.)

Free Silver Ions.—The sodium chloride test is conveniently applied to the filtrate from the Lloyd's Reagent. The test was found negative with all but Albargin (two samples) and with the sample of Roche's silver nucleinate.

The presence of free silver ions renders the solutions irritant, and therefore defeats the special object of the protein compound.

Solubility Behavior.—Table V shows that nearly all the protein silver compounds dissolve promptly and completely, at least to 25%, when placed in contact with water. The most conspicuous exception is Argonin, which dissolves slowly and imperfectly, like dried serum.

A strikingly abnormal solution behavior is also shown by an old sample of Collargol, which could not be suspended in water. This had been kept in an amber, glass-stoppered bottle probably for over ten years.

TABLE V.—SOLUBILITY BEHAVIOR.

The following observations were recorded in making the 25% solutions:

Solution complete and very prompt:
- Argyrol

Solution complete and prompt:
- Protargol
- Roche's Silv. Nucleinate
- Squibb's Silv. Prot.
- Silvol

Solution complete and fairly prompt:
- Albargin
- Hegonon
- Heyden Silv. Prot.
- Novargan
- Sophol
- Solargentum

Solution fairly prompt, but not quite complete:
- Roche Silv. Prot.

Undissolved, sticky mass, 10% also incomplete, 1% is turbid:
- Argonin

Permanent colloidal solution when triturated in water:
- Cargentos
- Collargol

Not miscible with water:
- Collargol, old sample

Specific Graviiy of 25 Percent Solutions.—Some ophthalmologists use the protein-silver compounds, especially the Argyrol type, for their specific gravity rather than for their antiseptic effect, the idea being that the heavier silver solutions would displace the secretions, pus and bacteria by gravity. Some such mechanical action would doubtless occur, if the patient is placed in the proper position; but if this has any value it would be obtained equally well, and much more cheaply, by a 25% solution of acacia.

The "25%" solutions were made by dissolving 0.5 Gm. of the substance in 1 5 Cc. of distilled water. The specific gravity was determined by weighing 1 Cc.

in an Ostwald pipette, at 20° C. The results are shown in Table VI, in descending order.

TABLE VI.—SPECIFIC GRAVITY OF 25% SOLUTIONS.

Collargol	1.230
Cargentos	1.166
Solargentum	1.159
Argyrol	1.147
Acacia	1.137
Silvol	1.137
Sophol	1.132
Roche Sil. Nucl	1.123
Albargin	1.112
Heyden Silv. Prot	1.108
Protargol	1.104
Roche Silv. Prot	1.100
Hegonon	1.093
Novargan	1.090
Squibb Silv. Prot	1.088

Argonin is not soluble to 25%. A 2.5% solution has the specific gravity—1.010.

Viscosity of 25 Percent Solutions.—This has no special relation to the natural groups, and is probably without clinical significance. It was estimated by the time of outflow from a 1 Cc. Ostwald pipette (from the 1 Cc. mark, to the junction of bulb and beak), at 20° C. The results shown in Table VII are arranged in descending order.

TABLE VII.—VISCOSITY OF 25% SOLUTIONS.

Name.	Seconds required for outflow. (Water = 40 seconds.)	Viscosity. (Water = 1.)
Hegonon	285	7.125
Sophol	180	4.125
Albargin	174	4.350
Squibb Silv. Prot	135	3.375
Cargentos	120	3.0
Roche Silv. Nucl	102	2.550
Protargol	75	1.875
Novargan	71	1.775
Argyrol	54	1.350
Heyden Silv. Prot	53	1.325
Silvol	50	1.250

Acacia: The 25% solution flowed too slow for measurement. A 10% solution (1 Gm. + 9 Cc.) flowed in 165 seconds, corresponding to a viscosity of 4.125.

Argonin, Collargol, Solargentum, and Roche's Silv. Prot. did not dissolve completely, and thus could not be measured.

APPEARANCE OF THE COMMERCIAL PRODUCTS: This is only of incidental interest. The specimens may be arranged as follows:

Coarsely granular

Argyrol (dull black masses)
Collargol, old sample (dull gray-black masses)
Collargol, fresh sample (brilliant steel blue granules)
Solargentum (bright black granules)

Bright black scales:
Cargentos
Silv. Nucl. Roche
Silv. Prot. Squibb
Silvol
Coarse Powders:
Albargin (appearance of dried albumen)
Argonin (buff)
Fine powders: (arranged in order of decreasing depth of color)
Heyden Silv. Prot. (dark red to dark chocolate tint)[1]
Sophol (chocolate)
Protargol (reddish brown)[1]
Roche Silv. Prot. (milk chocolate)
Hegonon (milk chocolate)
Novargan (buff)

Depth and Color of Transparency of 1 : 1000 Solutions.—This is a rough but useful aid to identification. The clearness or turbidity to reflected light appears related to the natural groups, the colloidal silver and the protargol type being generally turbid, whereas the argyrol type is generally clear.

For making the comparisons, one Cc. of 1 : 10 solution is added to 100 Cc. of water in a conical "urine-glass." The results are shown in Table VIII.

TABLE VIII.—APPEARANCE OF 1 : 10000 SOLUTIONS.

	Solution clear both with transmittent and reflected light.	Clear with transmitted light, but turbid by reflected light.	Turbid but with transmitted and reflected light.
Color very deep.....		Cargentos	Collargol
Color deep.....	Argyrol	Silv. Nucl. Roche	
	Silvol		
	Solargentum		
	Silv. Prot. Squibb		
Color moderate.....	Hegonon	Albargin	
	Protargol[2]	Sophol	
	Silv. Prot. Heyden		
	Silv. Prot. Roche		
Partially colored.....	Novargan		

Argonin has a different, violet tinge, and is turbid both by transmitted and reflected light.

Color Index.—Colorimetric measurements furnish a more accurate quantitative expression of the color-intensity. This is fairly characteristic for the groups, the collargol group standing the highest, the argyrol group intermediate, and the protargol group lowest. There are, however, individual exceptions. The color intensity increases with the silver content, but not in simple proportion.

Technic.—The 1 : 1000 to 1 : 50,000 solutions are compared with tenth normal potassium dichromate in a Duboscq colorimeter, set at 20. The tints do not match well, but sufficiently so to express the great difference in intensity.

The *simple color index* expresses the ratio *of the color* intensity of the 1 : 1000 solution of the silver compound, to the tenth-normal dichromate solution.

The *silver color index* is the simple index, divided by the percentage of silver in the compound. The results are shown in Table IX, with the compounds arranged in descending order of silver-color index.

[1] Different samples of Protargol and Heyden's Silver proteinate vary considerably in color.
[2] Different samples of Heyden's Silver Proteinate and of Protargol vary materially in color.

TABLE IX.—COLOR INDEX.

Name of substance.	Dilution.	Match of tint.	Reading.	Simple index.	Silver index.
Collargol	50,000	fair	16	62.5	0.80
Heyden Silv. Prot. (average)	..	.....	..	3.14	0.39
Cargentos	10,000	good	12	16.7	0.33
Silvol	10,000	good	31	6.5	0.30
Roche Silv. Nucl	10,000	fair	34	6.0	0.30
Argyrol	10,000	fair	48	4.2	0.20
Squibb Silv. Prot	10,000	good	47	4.3	0.20
Protargol (average)	..	.....	..	0.80	0.10
Roche Silv. Prot	1,000	fair	28	0.72	0.09
Hegonon	1,000	poor	50	0.4	0.06
Sophol	1,000	poor	40	0.50	0.025
Albargin	1,000	very poor	55	0.36	0.024

3. CLASSIFICATION OF THE PROTEIN AND COLLOIDAL SILVER COMPOUNDS.

The study of the preceding data has led to the compilation of the properties most useful for grouping. These are shown in Table X.

TABLE X.—CLASSIFICATION AND SIGNIFICANT PROPERTIES OF PROTEIN AND COLLOIDAL SILVER COMPOUNDS

Principal types. Members.	"Collargol." Collargol. Cargentos.	"Argyrol." Argyrol. Squibb Silv. Prot. Sophol. Silvol. Solargentum(?)	"Protargol. Protargol. Roche Silv. Prot. Heyden " " Nucl. Hegonon.	"Free Silver." Albargin Roche Silv.	"Pale" Norvagan Argonin.
Sliver content	50 to 78	20 to 25	7 to 8.5	*	4 to 10
Irritation	*	None	Slight but distinct	Marked	*
Albumen precipitation	*	*	More or less	Positive	*
Adsorption of color	None	*	More or less	*	*
Free silver	None	None	None	Present	None
Spec. Grav. of 25% sol.	1.160 to 1.230	1.132 to 1.147	1.093 to 1.108	*	*
Transparency of 1 : 1000 sol. by reflected light	*	Clear (except Sophol)	Clear	Turbid	*
Simple color index	16.7 to 62.50	4.2 to 6.5 (except Sophol, 0.50)	0.37 to 1.75	*	Very low
Silver color index	0.33 to 0.80	0.20 to 0.30 (except Sophol, 0.025)	0.044 to 0.20	*	Very low

4. DISTINCTIVE CHARACTERS OF THE INDIVIDUAL DRUGS.

These are arranged by groups and shown in Tables XI to XIV.

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* = Inconstant or not characteristic.

TABLE XI.—DISTINCTIVE CHARACTERS OF THE ARGYROL TYPE.

Members.	Argyrol.	Squibb's Silv. Prot.	Sophol.	Silvol.	Solargentum.
Silver percent (claimed)	20–25%	19–23	20	20	About 20
Irritation by 10% sol	None	None	None	None	None
Albumen	No precipitate	No prec.	Nearly clear	Distinct prec.	No precipitate
Lloyd's reagent, filtrate	Complete decolorization	Not decolorized	Not decolorized	Consid. decolorization	Deeply colored
Free silver (chloride test)	None	None	None	None	Absent
Solution	Very prompt	Prompt	Fairly prompt	Prompt	Permanent
Sp. Gr. of 25%	1.147	1.088	1.132	1.137	1.159
Viscosity of 25%	1.350	3.375	4.5	1.250	
Appearance	Dull black mass	Bright black scales	Fine chocolate powder	Bright black scales	Brilliant black granules
Color of 1:1000 sol.	Deep	Deep	Moderate	Deep	Deep
Transparency by reflected light	Clear	Clear	Turbid	Clear	Clear by both transmitted and reflected light
Sample color index	4.2	4.3	0.50	6.5	
Silver color index	0.20	0.20	0.025	0.30	5.0
Nature of Protein base	Denatured albumen	Gelatin	Methylen nucleinate acid	?	0.25

TABLE XII.—DISTINCTIVE CHARACTERS OF THE COLLOIDAL SILVER TYPE.

Members.	Cargentos.	Collargol (recent sample).
Percent silver (claimed)	50	78
Irritation by 10% sol	Slight, but distinct	None
Albumen	Fine precipitate	No precipitate
Lloyd's reagent, filtrate	Deeply colored	Deeply colored
Free silver (chloride test)	Absent	Absent
Solution	Permanent	Permanent
Spec. Grav. of 25%	1.166	1.230
Viscosity of 25%	3.0	
Appearance	Bright black scales	Brilliant steel blue granules
Color of 1 : 1000 sol	Very deep	Very deep
Transparency	Clear by transm tted light, turbid by reflected	Turbid, both with transmitted and reflected
Simple color index	16.7	62.5
Silver color index	0.33	0.80

TABLE XIII.—DISTINCTIVE CHARACTERS OF THE PROTARGOL TYPE.

Members.	Protargol.	Roche Silv. Prot.	Heyden Silv. Prot.	Hegonon.
Silver percent (claimed)	8.3	8.0	8.3	7.0
Irritation by 10% sol	Distinct	Very slight	Distinct	Very slight
Albumen	Turbid	Nearly clear	Almost clear to curdy precipitate	Nearly clear
Lloyd's reagent, filtrate	Considerably decolorized	Completely decolorized	Considerably decolorized	Some what decolorized
Free silver (chloride test)	None	None	None	None
Solution	Prompt	Limited	Fairly prompt	Fairly prompt
Sp. Gr. of 25% sol.	1.104	1.100	1.108	1.093
Viscosity of 25% sol	1.875		1.325	7.125
Appearance	Reddish brown, fine powder	Fine, milk chocolate powder	Fine, red to dark chocolate powder	Fine, milk chocolate powder
Color of 1:1000 sol.	Moderate	Moderate	Moderate to deep	Moderate
Transparency by reflected light	Clear	Clear	Clear to turbid	Clear
Simplex color index	Av., 0.80 (0.37, 0.77, 1.25)	0.72	Av., 3.14 (0.96, 1.75, 6.7)	0.4
Silver color index	Av., 0.10 (0.044, 0.09, 0.15)	0.09	Av., 0.39 (0.12, 0.20, 0.80)	0.06
Nature of protein base	?	?	?	Albumose

TABLE XIV.—DISTINCTIVE CHARACTERS OF SUNDRY TYPES.

Members.	Atypical. Novargan.	Atypical. Argonin	Free silver ions. Albargin.	Free silver ions. Roche Silv. Nucleinate.
Silver percent (claimed)	10.0	4.28	15.0	About 20
Irritation by 10% sol	None	None (5%)	Marked	Distinct
Albumen	Turbid	Nearly clear	Abundant curdy precipitate	Curdy precipitate
Lloyd's reagent, filtrate	Considerably decolorized	Completely decolorized	Completely decolorized	Completely decolorized
Free silver (chloride test)	None	None	Present	Present
Solution	Fairly prompt	Limited & gummy	Fairly prompt	Prompt
Sp. Gr. of 25% sol	1.090		1.112	1.123
Viscosity of 25% sol	1.775		4.35	2.55
Appearance	Fine, buff powder	Coarse, buff powder	Coarse powder like dried albumen	Bright, black scales
Color of 1:1000 sol.	Pale	Pale	Moderate	Deep
Transparency by reflected light	Clear	Turbid	Turbid	Turbid
Simple color index.			0.36	6.0
Silver color index.			0.024	0.30
Nature of protein base	?	Casein	Gelatin	?

SUMMARY.

The colloidal and silver compounds may be arranged into a few typical groups:

The Collargol Group, comprising Collargol and Cargentos.

The Argyrol Group, Argyrol, Squibb's Silver Proteinate, Sophol, and Silvol and Solargentum.

The Protargol Group: Protargol, Roche's Silver Proteinate, Heyden Silver Proteinate, and Hegonon.

The Free Silver Group: Albargin and Roche's Silver Nucleinate.

The Pale Group: Novargan and Argonin.

The distinctive data of these groups are shown in Table X; the detailed data are reproduced in Tables I to IX, arranged according to the tests; and in Tables XI to XIV, arranged according to the drugs.

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VARIATIONS IN NUX VOMICA AND ITS PREPARATIONS.*

BY HUGO H. SCHAEFER.

One of the more important changes in the U. S. P. IX as compared to the former revision is that of the alkaloidal requirement for Nux Vomica and its assay process. The former requirement called for 1.25% strychnine and in its determination the well-known assay process was used in which the total alkaloids are extracted, the brucine destroyed, by means of nitric acid and the remaining alkaloid calculated as strychnine. In the U. S. P. IX the requirements are for 2.5% total alkaloids and the assay process is of course based on the simple extraction and titrating of all the alkaloids of Nux Vomica.

It was found by the author that a greater percentage of samples of Nux Vomica met the requirements of the new Pharmacopoeia than that of the old. In other words that 2.5% total alkaloids was a lower standard than 1.25% strychnine. In order to definitely determine this question a number of samples of powdered Nux Vomica were taken and assayed according to the U. S. P. IX for total alkaloids. After titrating the latter the solution was made alkaline with ammonia water, completely shaken out with chloroform, the latter evaporated and the residue taken up with 15 mils of 3% sulphuric acid. This solution was now treated with nitric acid to destroy the brucine and the assay completed as described in the U. S. P. VIII, for the determination of strychnine. This data so obtained gave the total alkaloidal content, the percentage of brucine and that of strychnine in Nux Vomica, it being taken for granted that the other alkaloids present appear in so small a quantity as to justify their not being considered. The results obtained were as follows:

POWDERED NUX VOMICA { U. S. P. VIII = 1.25% STRYCHNINE. / U. S. P. IX = 2.5% TOTAL ALKALOIDS.

Sample.	Total alkaloid. Method U. S. P. IX.	Strychnine. Method U. S. P. VIII.	Brucine. by difference.
A	2.64%	0.88%	1.76%
B	2.93	1.32	1.61
C	2.52	0.73	1.79
D	1.92	0.73	1.19
E	2.97	1.54	1.43
F	3.21	1.25	1.96
G	2.71	1.30	1.41
H	3.53	1.30	2.23
I	2.38	1.26	1.12

A number of interesting points may be obtained by studying these results. Of the nine samples all but two would come up to the requirements of the U. S. P. IX while three would not meet those of the U. S. P. VIII. Samples A and C would pass U. S. P. IX but not U. S. P. VIII. Sample D would pass neither the old nor the new requirements while Sample I would pass the U. S. P. VIII and not IX. There therefore seems to be absolutely no relation between the percentage of total alkaloid and that of strychnine. The percentage of strychnine in the total alkaloid varies from 33 to 53%.

Samples of fluidextract and tincture of Nux Vomica were now taken at random and assayed in similar manner as before described, first in accordance with the

* Read before New Jersey Pharmaceutical Association, 1918 meeting.

U. S. P. IX to determine total alkaloid after titration was shaken out with chloroform and the strychnine determined according to the U. S. P. VIII with the following results:

FLUIDEXTRACT { U. S. P. VIII = 1% STRYCHNINE.
U. S. P. IX = 2.37–2.63% TOTAL ALKALOIDS.

Sample.	Total alkaloid. Method U. S. P. IX.	Strychnine Method U. S. P. VIII.	Brucine by difference.
A	2.46%	0.79%	1.67%
B	2.64	1.27	1.37
C	2.51	1.03	1.48
D	2.39	0.91	1.48
E	2.41	1.21	1.20
F	2.48	0.77	1.71

EXTRACT { U. S. P. VIII = 5% STRYCHNINE.
U. S. P. IX = 15.2–16.8% TOTAL ALKALOIDS.

Sample.	Total alkaloid. Method U. S. P. IX.	Strychnine. Method U. S. P. VIII.	Brucine by difference.
A	15.41%	4.93%	10.48%
B	16.32	6.69	9.63
C	14.89	5.21	9.68
D	17.1	8.21	8.89
E	15.61	6.71	8.9
F	16.45	6.01	10.44

TINCTURE { U. S. P. VIII = 0.1% STRYCHNINE.
U. S. P. IX = 0.237–0.263% TOTAL ALKALOIDS.

Sample.	Total alkaloid. Method U. S. P. IX.	Strychnine. Method U. S. P. VIII.	Brucine by difference.
A	0.241%	0.111%	0.130%
B	0.271	0.084	0.187
C	0.213	0.079	0.134
D	0.224	0.114	0.110
E	0.251	0.080	0.171
F	0.249	0.102	0.147

Again the results show that there is absolutely no relation between the percentage of total alkaloid and that of strychnine and some of the samples while meeting the requirements of our present Pharmacopoeia show a decided deficiency in strychnine content as required by the U. S. P. VIII.

The question therefore suggests itself whether it would not be better to have both a requirement for total alkaloid and for strychnine. Considering the results obtained from the powdered Nux Vomica, Sample C contained 2.52% total alkaloid and yet is of decidedly inferior quality since it only contains 0.73% strychnine. On the other hand Sample I contains 1.26% strychnine but only 2.38% of total alkaloids therefore also of inferior quality. In the opinion of the author no difficulty would be had in obtaining Nux Vomica on the market, which contains at least 2.5% total alkaloids and 1.25% of strychnine. The combination assay process as suggested before could be used thereby requiring only one sample for the entire assay and making it a little more difficult and complex than the assay of the U. S. P. IX.

SOME OBSERVATIONS ON THE DISSOLVING OF ZINC CHLORIDE AND SEVERAL SUGGESTED SOLVENTS.*

BY JOSIAH C. AND BERTHA L. DEG. PEACOCK.

The salts of zinc which are soluble in water, especially the sulphate, acetate and chloride, have long been used in injections, lotions, eye-washes, mouth-washes and other such forms of application, usually in weak solutions, a few grains to the ounce.

The sulphate and acetate of zinc readily dissolve in water without residue; but zinc chloride upon contact with water has a strange behavior, and when treated with water in large proportions leaves an insoluble residue known as oxychloride, or basic chloride of zinc; it matters not which is added to the other. This undissolved portion is bulky, therefore impressive as to quantity especially when resulting from one or two grains of zinc chloride intended for eye-drops. That it does contain both zinc and chlorine, we have assured ourselves by qualitative analysis; it may therefore be rightly termed, basic chloride of zinc, or oxychloride. Whatever of oxide of zinc or oxychloride of zinc was present in the sample dissolved may also be looked for here.

In order to appreciate the quantity of oxychloride usually left undissolved, let us cite a reference found in the Proceedings of the American Pharmaceutical Association, 1896, page 715, "Zinc Chloride-Dissociation by Water" Perrot has observed that when zinc chloride, free from oxide was dissolved in water, a precipitate was formed, which had the composition $ZnCl_2.5ZnO.6H_2O$. An inquiry into the relations of the quantity of water to the amount of oxychloride formed resulted in the determination that by employing 100 molecules of water, 3.75 percent of oxychloride was formed, the same quantity was formed with 75 molecules, 3 percent was formed with 50 molecules and 2.6 percent with 25 molecules. "The limit of the reaction is, therefore, with 75 molecules of water, the addition of large quantities giving no increase in the yield of oxychloride." *Pharm. Centralh.*, January 23, 1896, 46 from *Bull. soc. chim.*, 1895, 975.

Commercial zinc chloride may contain some pre-existent oxychloride as an impurity from over-heating in manufacture, and samples of medicinal zinc chloride such as the official grade are expected to show a separation of oxychloride under the condition named; the United States Pharmacopoeia accordingly provides a test for limit of oxychloride.

The equation commonly used to explain the change of zinc chloride through the effect of water into this basic salt is $ZnCl_2 + H_2O = Zn(OH)Cl + HCl$.

As already mentioned the precipitate is strikingly bulky, but is by no means a great part of the zinc salt taken. The production of free hydrochloric acid as shown by the equation, is perhaps the reason that all of the zinc is not precipitated by the water. A proper conception of this reaction demonstrates the fact that every clear solution of zinc chloride that is obtained by dissolving zinc chloride in large quantities of water is a solution of zinc chloride plus hydrochloric acid. This is a matter to be noted toward a better understanding of the behavior of this peculiar substance, for although at this point the statement is largely inference it will, in due course, become a proven fact.

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* Read before Pennsylvania Pharmaceutical Association, 1918 meeting.

Even though the undissolved matter is no great part of the zinc chloride, it does of course represent activity which it is the duty of the pharmacist to vouchsafe to the patient. Therefore, to remove it would be wrong, to dispense it in eye-drops, or similar preparation, would be useless, if not productive of more serious trouble than an explanation.

When first we encountered this behavior we could not take time to investigate it, so acting under the impression that free hydrochloric acid would be present in any event, as shown by the equation, we concluded that the most practical thing to do was to supply that through lack of which the obstacle arose; in other words, add sufficient hydrochloric acid to the zinc chloride itself to enable the water to carry all of the zinc chloride into solution, realizing as already said, that free hydrochloric acid would be present in the finished product whether all or only part of the zinc chloride was in solution, for this procedure assures the zinc to the patient.

The addition of the hydrochloric acid was made in the dispensing of several grains of zinc chloride by putting a single drop of concentrated acid upon the salt, and after mixing by trituration the water was added. When but a grain or two of zinc chloride was to be dissolved, a mere trace or touch of the acid was used, or a portion of a diluted drop. Much less acid is needed if put directly upon the zinc salt. Any mixture prepared without this addition and showing turbidity was rejected because too much acid would have to be added to the fluid. The effect of the acid added is to produce zinc chloride and water; $Zn(OH)Cl + HCl = ZnCl_2 + H_2O$ the very material desired in the product. We have often wondered "what better can be done?" Theory would indicate that the hydrochloric acid in the liquid could be neutralized by mixing it with zinc oxide or carbonate and filtering off the undissolved portion. This plan however is neither so accurate nor so simple as it appears when tried on a small lot of eye-drops.

Although the plan of adding acid had been used for many years, without any untoward effects, there might have arisen a comparison between the work of dispensers, wherein the reason for such an addition might be difficult of explanation to the lay mind, for although we believed we were acting within the bounds of right judgment, it might not have been possible to satisfy the patient that such was the case. Nor was the patient the only one who might have to be convinced of the common-sense of the plan, as we shall soon learn, and it was this apprehension, perhaps, more than any other influence that persuaded us to look for another solvent. Since undertaking this study of the subject, we find that others have practiced this method as the only practical means of dissolving zinc chloride. Indeed we find that this problem had been referred to a commission of apothecaries and physicians in Belgium, because physicians were objecting to the use of the acid. This body discountenanced the use of the acid, and recommended the use of a turbid solution or the clear liquid therefrom, either of which as has been pointed out will contain the same amount of free hydrochloric acid, *produced but not added.* Referring to the report of this commission, Dr. Paul Wiskirchen, in the *Pharm. Zeitung*, 1899, page 268, states that he finds "the addition of acid is unnecessary. He finds that if it is attempted to dissolve pure zinc chloride in cold water, or if cold water is added to a clear solution of zinc chloride, turbidity is invariably produced, but

if the solution is effected with hot water, or if the dilution is made with hot water, clear solutions result, and so remain permanently." This quotation is from the proceedings of the American Pharmaceutical Association, 1900, page 717, for which it was abstracted from the *Pharm. Centralhalle* of August 17, 1899, page 508. In the same proceedings for 1907, page 850 we find another abstract which we quote in its entirety.

"*Zinc Chloride—Simple Method to Effect a Clear Solution.*—Franz Wippern directs attention to the fact that while pure zinc chloride usually produces a turbid solution when it is dissolved in cold water, it dissolves perfectly clear in hot water and the solution remains clear on cooling (*Pharm. Zeitung*, Li, No. 73 (1906) 807)." Wondering whether we had shut our minds to such a simple and efficient agent as hot water, we hastened to try the suggestion, but only to be utterly disappointed, for we found no appreciable difference in either the immediate or prolonged effect of hot or cold water, in dissolving the salt, or diluting concentrated solutions. If there is any perceptible difference in the effect of hot water from that of cold water, it is merely in making the sediment more dense and to settle somewhat faster, perhaps to be overlooked more easily. Not satisfied to record a refutation of these statements without sufficient proof, we made dozens of tests under varying conditions and quantities, but all to no avail. The statements are erroneous. It was now decided to look into the properties of zinc chloride itself as the most rational starting point of our quest.

One of the characters of zinc chloride which should be borne in mind throughout the consideration of this subject is that property of its solutions to turn litmus from blue to red, or, as usually described, its acid reaction. As is well known this property is common to many of the soluble salts of the metals; we merely want to remind ourselves at this time that it does not indicate free acid. The sample of zinc chloride which was employed for these experiments conformed to the U. S. P. requirements as to limit of oxychloride content and production; it also conformed to the other tests of the same standard. After a number of experiments made more or less at random to determine features which seemed to have bearing upon the matter in hand, a series of experiments was outlined through which it was purposed to follow some zinc chloride in order to note its behavior under varying conditions. Accordingly, a convenient portion of it was placed in a vessel and water added drop by drop with constant stirring. Approximately an equal weight of water dissolved it—the mixture becoming warm as solution progressed—and a practically clear solution resulted. The addition of water in small portions was continued until a decided precipitate made its appearance. These experiments were repeated several times with different amounts of zinc chloride. On an average it required over five times as much water as zinc chloride to produce a permanent turbidity or precipitate. The further dilution of these turbid solutions with water threw out more precipitate, so the addition of water was continued until to all appearances no more oxychloride was being produced. This condition appeared to be attained when twenty or more parts of water had been added. One of these mixtures was allowed to settle and the clear supernatant liquid decanted upon asbestos wool. The filtrate was placed upon a water bath for evaporation. The undissolved portion (oxychloride) was washed and boiled with

sodium carbonate to separate the zinc and chlorine, both of which were shown to be present.

Before passing on to the consideration of the evaporated filtrate let us observe some of the behaviors of the clear solution of equal parts of zinc chloride and water. The statement is common in works of reference that zinc oxychloride is dissolved by zinc chloride solution; now the fact, that up to a certain dilution a clear solution of zinc chloride is possible must certainly be conceded to be proof of this statement. The inference then would be that the total acidity of the zinc chloride solution is sufficiently powerful in that certain concentration to hold in solution any oxychloride which existed in the sample as well as to prevent the separation of the incipient oxychloride which will be manifested upon a further dilution.

Looked at from the view point which attaches to precipitated oxychloride, another significance to be gathered from this phenomenon is that there is a limit to the ability of the acidity of the zinc chloride solution to hold the oxychloride in solution, and, as through gradual dilution this power suffers attenuation the separation of oxychloride progresses until exhaustion is attained when down comes such balance of zinc in the form of oxychloride as the weakened acidity of the solution can no longer hold dissolved. The present acidity of the solution must, therefore, be looked upon as the only reason that all of the zinc is not thrown out in preparing clear zinc chloride solutions by dissolving or diluting with water.

That this acidity must be sufficient, though not necessarily of a related form, was proven through a fortunate thought which occurred just before finishing the work upon these tests, namely, zinc chloride can be dissolved in a well charged carbonic acid water, without residue of oxychloride, and further evidence that acidity is the essential was shown by the fact that if this same solution is boiled or agitated to expel the carbon dioxide, the insoluble oxychloride appears. Boiling caused its immediate separation, agitation revealed it but slowly, while quiet maintained a clear solution for over four days, when afterwards the application of heat caused the escape of a few bubbles of gas, and the looked-for precipitate appeared. But for its fleeting nature, what could be better for our need? That there may be a trace of oxychloride yet held in solution by the combined acidities of the zinc chloride and free acid which have ever enveloped it, would be difficult indeed to prove, but it was proven that a clear solution of zinc chloride of greatest strength possible will not dissolve oxychloride which has been previously separated from a solution. A portion of the cold, clear concentrated solution of zinc chloride was mixed with a small amount of zinc carbonate without change in appearance, but upon boiling the mixture the zinc carbonate dissolved. Even after no more carbonate would be taken up the solution retained its power to redden litmus. On the other hand, a clear solution of zinc chloride from which oxychloride has been completely separated by sufficient dilution, did not dissolve zinc oxide or carbonate, even upon prolonged digestion with heat, thus indicating that in this dilution the affinity between the zinc oxychloride and hydrochloric acid as a balanced condition within the solution is greater than between the zinc oxide and hydrochloric acid.

The liquid which was placed upon the water bath was evaporated to nearly constant weight. It was now in the form of a thick, syrupy liquid, for zinc chloride cannot readily be dried on a water bath under atmospheric pressure. Besides,

what moisture it retains this syrupy residue would be expected to also contain the hydrochloric acid from the reaction producing the oxychloride from which it had been filtered; later it will be shown that it does contain this hydrochloric acid.

Two series of experiments, with this syrupy residue, were arranged. In the first of these it was mixed with water gradually added and finally increased to a considerable bulk to find that it dissolved clear throughout. It was then re-evaporated under the same condition to a syrupy consistency and again found to dissolve clear; a third such treatment was given to it, and a third time it dissolved clear. The reason for its doing so was the presence of a sufficient amount of said hydrochloric acid, tenaciously retained throughout the evaporation, to effect solution, as was proven to be the case by treating the syrupy liquid of the second series of experiments with zinc carbonate. When put into the syrupy liquid the zinc carbonate made no demonstration of the presence of acid until the mixture was thinned with just sufficient water to permit of enough motion for reaction. Effervescence then took place with the disappearance of the small amount of zinc carbonate which had been added. More zinc carbonate was now added until in excess, and the solution warmed, gradually but abundantly diluted with water, and filtered. The clear liquid would now be considered as containing no free hydrochloric acid. Next, it was evaporated to a syrupy consistency on a water bath, and then mixed with water as had been done in the experiment just preceding it. Instead of dissolving clear as the preceding one, the present experiment gave with the first portion of water a clear solution but upon further dilution an abundant residue of oxychloride. This was separated and the filtrate evaporated as before, and upon treatment with water gave a clear solution, thus showing that the acid which was produced in the solution, along with the oxychloride was sufficient to redissolve all of the zinc chloride. Another evaporation and solution substantiated this opinion. The liquid of the first series was now evaporated for the fourth time, and after it had reached the syrupy consistence, the vessel was placed over a direct flame, and the heat continued, while tests were made from time to time, by removing a drop with a glass rod, until a point was reached when the drop gave a turbidity with water. This stage was not attained until after and in succession the last trace of moisture which had been held so tenaciously by the zinc and the adhering hydrochloric acid had been driven off and the zinc chloride had been liquefied by the heat, giving additional evidence that adhering hydrochloric acid had been the reason for this syrupy liquid persistently dissolving clear. The fused residue was now treated with an abundance of water and the mixture filtered. This filtrate was evaporated to a syrupy condition as before and found to dissolve clear in water. Another fused mass corresponding to that just described was treated with a limited quantity of water and upon filtering, evaporating and again diluting, oxychloride separated, because when the mass was treated with the limited quantity of water not enough water was present to adjust the acidity so that the full production of oxychloride might take place. The insoluble portions of the fused masses were all shown by tests to be oxychloride.

In order to observe a specimen of zinc chloride which had never been in a solid state and thus avoid oxychloride due to overheating, a concentrated solution was prepared by saturating warm hydrochloric acid with zinc oxide added in excess.

The clear supernatant liquid from this mixture precipitated with both hot and cold water and in all respects corresponding dilutions behaved exactly as those obtained from the dissolved salt. One could imagine nothing more likely to be chemically neutral than this solution prepared by neutralizing the acid with the zinc base, and its precipitation by water must convince the most skeptical that free acid is not only present in every diluted zinc chloride solution prepared with water alone as the solvent, but also needed to insure complete solution.

Neutralize such diluted solution in part, and simultaneously with the precision of natural law readjustment takes place between the zinc chloride and the water present, with the formation of oxychloride and the production of a corresponding amount of free acid; there will be free hydrochloric acid in a diluted solution made with water alone while there is zinc chloride left in it.

Any amplification of these experiments will but reiterate the proven fact at first but inference—that when this dilution is reached there has been formed and retained enough hydrochloric acid sufficient to re-dissolve the residue in any amount of water that may be added.

So much for our study of zinc chloride under the conditions of ordinary manipulation by the pharmacist, and like every definite chemical substance it always behaves the same under identical conditions no matter how often they recur. And still the problem—to get zinc chloride into solutions of such strength as ordinarily called for in prescriptions, without loss—remained unsolved. Left as we were to make the best of what cannot be changed, one might decide, and with sanction of authority, as previously pointed out, to prepare a solution of zinc chloride and ignoring the slight precipitate, ascribe to it an approximately definite strength and of this take sufficient quantity as needed. Such course is perhaps the next best plan to getting the zinc salt entirely dissolved, but the accomplishment of the latter was what had prompted the work; and yet meditation seemed to be but closing the door to possibility.

While reviewing numerous experiences with zinc chloride in prescription work, it was thought that there was a possibility of boric acid being the agent sought. It had been used a great many times in eye-washes with zinc chloride but had never been depended upon for solvent effect. Its suitability to eye-washes and its mild acidity, however, strongly urged a trial, and the first experiment showed that it has the very property desired, while subsequent trials established the fact that boric acid will give clear solutions with zinc chloride, grain for grain, in any dilution, hot or cold, up to about twenty grains per ounce. Boric acid applied to the zinc chloride will prevent the precipitation of zinc oxychloride; it will also redissolve a precipitate of oxychloride, although proportionately more is then required than is needed to prevent the precipitate. A saturated solution of boric acid is a convenient form in which to employ the agent, adding it directly to the zinc chloride, or the reverse. Saturated solutions of boric acid at ordinary indoor temperatures contain about twenty grains of boric acid to the fluid ounce; these solutions will dissolve an equal amount of zinc chloride. If such concentrated solutions of zinc chloride are exposed to a lower temperature, they become cloudy, peculiarly so, and though cleared by warmth they do not retain their transparency.

Solution by means of boric acid may also be accomplished by mixing the boric acid intimately with the zinc chloride before the aqueous solvent is applied. This plan involves some allowance for the slow solubility of the boric acid itself. Solutions of zinc chloride by means of an equal amount of boric acid are permanent, with the exception of the saturated solution as already mentioned. Less than an equal amount of boric acid does not appear to insure permanency.

The limit of solubility of boric acid is the only shortcoming of this agent so far observed. It is of interest to note for subsequent comparison, that upon boiling zinc oxide or zinc carbonate and boric acid together, no zinc enters solution.

While little, if any, objection can be raised to the use of boric acid in this connection, yet because of its limited effect we sought for another solvent less restricted. Attention had been arrested by a reference to the soluble double salts which zinc chloride forms with ammonium chloride, and effort was turned in that direction. The results with boric acid had strengthened the belief that an acidulated medium is essential to the purpose, and associating this thought with the fact that solutions of ammonium chloride are prone to redden litmus, unquestionably through the presence of a trace of free hydrochloric acid, it was undertaken to learn what effect ammonium chloride would have in the dissolving of zinc chloride. Gratifying, indeed, was it to find in the substance a very efficient solvent, and more powerful than boric acid, for applied directly to the zinc chloride one grain of ammonium chloride will dissolve five grains of zinc chloride. If used to dissolve a precipitate of oxychloride an additional amount may be needed, apparently dependent on strength of solution. The solutions with ammonium chloride are permanent.

There would seem to be no objection to the use of the few grains of ammonium chloride which would be needed to prepare an application for a mucous membrane since such parts are constantly saturated with solution of chlorides and likewise inured to the presence of ammonium compounds. Should a very strong solution of zinc chloride be needed as for powerful local effect, ammonium chloride may be depended upon to yield a clear solution.

The possibility of decomposing ammonium chloride in solution with zinc oxide, in the capacity of an alkali or alkaline earth, had not come to mind until now. Upon boiling zinc oxide with a solution of ammonium chloride it was found that the zinc oxide dissolved, of course, with the inevitable liberation of ammonia. Zinc carbonate behaves in this same manner with ammonium chloride. A parallel test with water was made to check up these results against any soluble zinc impurities in the oxide and carbonate. Herein may be considered to abide the solvent effect of ammonium chloride on zinc oxychloride—an effect again attributable to acidity of medium.

Representing the action by the equation $Zn(OH)Cl + NH_4Cl = ZnCl_2 + H_2O + NH_3$, ammonia gas might at first be expected to be in evidence. But when it is recalled that free hydrochloric acid is present or producible in a quantity definitely proportionate to the oxychloride to be dealt with, it is readily understood that no ammonia should be evolved, nor was any, as proven by test.

Sodium and potassium chlorides have no solvent effect upon zinc chloride, but ammonium chloride gives a clear solution of zinc chloride in normal salt solution, and so does boric acid.

A sample of zinc ammonium chloride was prepared by adding to a solution of zinc chloride of known strength the calculated amount of ammonium chloride to supply an equal number of molecules of the two salts. Crystallization of this solution yielded a product which was recrystallized to obtain the sample shown at this time. The identity of the product was established by tests.

Zinc ammonium chloride forms colorless, transparent crystals, without odor and having an intensely caustic taste. It is readily and completely soluble in water; the aqueous solution is acid to litmus; the solution remains permanently clear. This salt is not an article of commerce in channels through which the pharmacist trades, nor is its use suggested, for the acquisition of it needlessly increases one's stock, especially since boric acid and ammonium chloride must always be at hand.

Since medicated waters are frequently used in solutions for treating conditions wherein zinc chloride is likely to be employed, some experiments were made to observe the behavior of these liquids toward zinc chloride. Peppermint water was found to act as does distilled water, boric acid and ammonium chloride but yield clear solutions. Camphor water was found to possess acidity sufficient to dissolve zinc chloride up to ten grains per ounce. Beyond that strength camphor water takes on a satiny opalescence due to the separation of microscopic crystals of camphor. The addition of ammonium chloride increases this opalescence. But with or without ammonium chloride these camphor crystals re-enter solution within a few days, or immediately upon the addition of a few drops of alcohol. The samples of rose water at our disposal were neutral to litmus; they did not dissolve zinc chloride completely until boric acid or ammonium chloride was added. A past experience but well remembered, leads us to believe that specimens of rose water may be encountered which will give clear solutions.

Mucilage of sassafras pith did not dissolve the zinc chloride, until boric acid or ammonium chloride was added; but though the zinc oxychloride went into solution the mucilage was rendered cloudy by its contents.

The statement that zinc chloride forms soluble double salts with some alkaloids as well as with ammonium chloride was tried out with some of those used in eye-washes, with the following results: Equal parts of morphine hydrochloride and zinc chloride did not yield a clear solution, until ammonium chloride was added. Equal parts of pilocarpine hydrochloride and zinc chloride did dissolve clear. Equal parts of cocaine hydrochloride and zinc chloride did not dissolve clear, without the addition of ammonium chloride; boric acid likewise carried the mixture into solution. Ammonium chloride produced clear solutions when zinc chloride was brought together with morphine sulphate and atropine sulphate.

CONCLUSIONS.

Our conclusions from this mass of experiments and words may be summed up in short as follows: the separation of zinc oxychloride when zinc chloride is dissolved in water is always accompanied by liberation of free hydrochloric acid which remains in the solution; at the same time a loss of zinc is experienced. Both of these objections may be overcome in solutions up to approximately twenty grains to the ounce by the use of boric acid, weight for weight of zinc chloride taken. For solutions exceeding this strength, or for any strength, ammonium

chloride in quantity of not less than one-fifth of the amount of zinc chloride used, will insure complete and permanent solution. Camphor water will dissolve a few grains of zinc chloride per ounce. Carbonic acid water may be employed if intended for immediate use. And finally the comparative ease with which a minute quantity of either boric acid or ammonium chloride prevents a precipitate as against the larger quantity needed to redissolve oxychloride once formed may be impressed upon our minds by the wisdom of the maxim: "An ounce of prevention is worth a pound of cure."

THE MANUFACTURE OF ASPIRIN TABLETS.*

BY ROBERT C. WHITE.

The data presented by the author are based on his investigations of Aspirin tablets of American manufacturers, including also the original Aspirin tablet. No report is made on the content of aspirin, but only of the tests involving the physical operation of making the tablets. The author states that manufacturers are constantly improving their product and as the tablets reported on are of different dates of manufacture, no names of manufacturers are given and the tablets are referred to by number. The table following has been prepared from Doctor White's report in order to condense this matter; that which follows thereafter is printed from the original.—EDITOR.

The manufacture of Aspirin tablets may be placed in what is considered by manufacturers the "delicate" group. Many things coming in contact with aspirin can exercise either physical or chemical function, and so either contaminate or break down the aspirin content. In the manufacture of any tablet there are several important features to which the manufacturers give considerable atten-

EXAMINATION OF ASPIRIN TABLETS.

Quality, description and composition.	Sample No. 1. Examined May 1918.	Sample No. 2. From eastern manufacturer Examined May 1918.	Sample No. 3. From eastern manufacturer. Examined June 1918.
Appearance	Poor	Fair	Poor
Color	Good	Fair	Dark
Die	Satisfactory	Poor	Good
Punch	Poorly engraved	Plain	Very poor
Monogram	Indistinct	None	Poor, engraving worn
Carrying Qualities	Very poor	Good	Poor
Disintegration	Good	Good	Fair
Disintegration Agent	Evidently potato starch	Potato starch	Corn starch
Uniformity of Weight	Poor	Average, good	Poor
Maximum Weight	7.3	6.4	7.7
Minimum Weight	4.7	5.7	5.3
Excipient	Weak starch paste	Weak gum solution	Gelatin solution
Other Filler	Corn starch	Corn starch	Corn Starch
Lubricants	Oil, none.	Oil, small amount Talcum, large quantity	Oil, large quantity Talcum " "
Contamination	None	Iron	Bad. Evidently iron stains
Packing	Fair	Poor and loose	Poor

* From a paper read before Pennsylvania Pharmaceutical Association, 1918 meeting.

Quality, description and composition.	Sample No. 4. From eastern manufacturer. Examined June, 1918.	Sample No. 5. From middle-west manufacturer. Examined June, 1918	Sample No. 6.[1] From middle-west manufacturer. Examined June, 1918.
Appearance	Good	Good	Fair
Color	Very good	Good	Poor
Die	Good	Good	Badly worn
Punch	Plain, good	Plain, good	Plain, good
Monogram	None	None	None
Carrying Qualities	Good	Fair	Good
Disintegration	Good	Fair	Fair
Disintegration Agent	Potato starch	Potato starch	Corn starch
Uniformity of Weight	Good	Good	Poor
Maximum Weight	6.2	6.4	6.6
Minimum Weight	5.9	5.7	5.3
Excipient	White dextrin	Evidently tragacanth	Evidently gelatin or gelatin and gum acacia
Other Filler	Potato starch	Corn starch	Corn starch
Lubricants	Oil, none. Talcum 1/8 grain	Oil, small quantity. Talcum, 1/4 grain	Entirely too much oil. Talcum, very heavy
Contamination	None	None	With metal, apparent
Packing	Good, in glass only	In glass, good	Good

Sample No. 7, examined June 1918: Purchased in a Washington, D. C. drugstore. Name of manufacturer could not be obtained. Had evidently been heated too long in drying, with apparent contamination. The edges were poor, and the tablets quite mottled as if too dark a shade of talcum had been used. This sample was so far outclassed by those of other manufacturers that it is of no interest whatever except that it tends to show that very poor workmanship in pharmaceutical products still is practised.

tion. The first desirable thing is to present in tablet form the chemical as nearly in its original condition as is possible. The second important thing is disintegration, though in the case of aspirin this is not vital as it takes, according to various authorities, about forty minutes for aspirin to become decomposed in the gastric fluids.[2] The next feature is to have present as little foreign ingredient as is possible As we know, there are many tablets such as formin, potassium iodide, sodium chloride, sodium bicarbonate, potassium permanganate, sugar, etc., which if obtained in granular form of the proper size may be compressed without the use of any excipient, or binder, without the presence of any filler, and without the addition of any disintegrating agent whatever. The physical properties of aspirin are such that it is placed in a class of tablets known to some manufacturers as moist tablets. This class includes such tablets as quinine, acetanilid, etc., or tablets which can never be produced with a glass-like surface. The term moist in this case originated with the appearance of the tablet which no amount of blowing, or dusting will make entirely smooth. Such tablets, if great pressure is applied are inclined to cap, or on account of their sticky surface allow small particles to adhere to the punches, thus leaving dents in the surface of the tablet. This to the manufacturer is known as "picking," meaning that the punches pick off a small particle, leaving a cavity in the tablet. It will be readily seen from the physical properties of aspirin that it is necessary to have present a binder, or ex-

[1] Tablets on account of excessive pressure used in manufacture would not disintegrate speedily enough, yet their fracture was soft.

[2] (U. S. Dispensatory, 20th Edition.)

cipient. Sugar has not proven satisfactory for this purpose, as sugar itself attracts moisture, and complicates the operating of a compressing machine. It must also be remembered that moisture decomposes aspirin, and its presence in large quantities is highly objectionable, therefore the excipient must be one that can be dried very readily and that, at a low temperature. Glucose, gelatin and tragacanth all fail to answer on account of their sticky and slow drying qualities. Honey would not answer, as its tendency is to darken white tablets, and the need of much filler makes it unsuitable. Water alone will not bind properly. Solution of acacia answers fairly well, but both starch paste and acacia are lacking in making a fine aspirin tablet. It will, therefore, be found that a weak solution of white dextrine in combination with a filler of starch answers better than any other excipient for producing a mass of aspirin for proper granulation. It might here be explained for the information of the uninitiated that except in extremely rare cases it is never possible to compress powders of fine degree, but that granules must be built up from the powder.

Another feature involved in the preparing of an aspirin mass or mixture is that it must not be exposed to contamination from metals. From the samples examined it is evident that some of these have been manufactured in the ordinary iron mixers, or if granite-ware containers have been used, the surface has not been perfect, and iron has been exposed. If this is not the case the moist mass, before drying, has evidently been forced through a brass or an iron screen, which has produced contamination and resultant discoloration. In this particular product the writer has found nothing more satisfactory than the mixing of the aspirin ingredients in a special wooden tub made of maple. The operator may mix the dry ingredients through a properly protected powder mixer, but the addition of the dextrine solution must be made in these wooden tubs, the operator wearing long rubber gloves. Care should be exercised in all cases that the minimum amount of moisture for the best results to be obtained shall be strictly adhered to. The finished mass taken from these wooden tubs should be forced very quickly through perfectly clean and well tinned screens, placed immediately in aluminum trays, and dried *in vacuo* at a temperature not exceeding 120° F.

It will be found if all these rules are observed to that aspirin may be dried in three or four hours. If during this time the aspirin has not been exposed to the air it will be found that the granulation, dry and ready for compression, is in proper condition to be placed on the presses. No oil should be added in the running of aspirin tablets unless absolutely necessary on account of weather conditions. It will be found that though on account of the absence of oil the sides of the tablets will not be bright and polished (due to the moist physical properties of the ingredients as was spoken of earlier) the edges will be sufficiently smooth for all purposes; and the absence of the oil (which would in time penetrate the tablet) will permit of a harder tablet.

A minimum amount of pure white talcum, not exceeding $^1/_8$ grain to the tablet must be used as otherwise picking on surface of the tablet will occur. If the engraving of monogram punches is very fine it will be necessary to increase this amount of talcum in order to prevent the material from sticking in the engraving. It should be borne in mind that talcum is objectionable in all cases and as little as possible should be used.

As speedy disintegration of all tablets is considered essential, a disintegrating agent must be used. Doubtless, known to many, potato starch is the disintegrating agent par excellence as it swells very rapidly and ruptures a tablet very quickly when it is introduced into aqueous solution.

The following criticisms in general might be based on the aspirin tablets at present supplied by all except one or two manufacturers: that many of them are off color, some having unquestionably been subjected to contamination. Corn starch has been used by many in preference to potato starch; the excipient used by some is also too heavy and too slow drying.

The nature of engraving used on such monogram punches as have been operated in making aspirin tablets is not of a proper make to use on tablets of such dusty physical appearance. Others through not using a proper disintegrating agent have compressed the tablets too hard which makes them too brittle for carrying. In other cases, to permit of speedy disintegration, insufficient pressure has been applied.

In behalf of the tablets examined, however, the writer would like to state that the disintegration in general has been exceptionally good, the discoloration only moderately bad, and that while the appearance of most of the tablets is poor, it is undoubtedly preferable to sacrifice physical appearance for efficacy in all cases and when all is said and done it is quite probable, too, that though these matters are of considerable importance to manufacturers, the retail druggist may be in a position to inform us that the public are not sufficiently educated in such details, and may prove to us that the poorest looking tablet is the best seller of all.

WHAT IS THE MEANING OF A DEGREE IN PHARMACY?*

BY L. E. SAYRE.

It will not be the aim of this paper to extol pharmaceutical degrees, or make a plea for their standardization or unification, but rather to suggest for consideration the importance of some questions indirectly associated with degrees.

The desirability of unification and standardization of degrees in pharmacy has been ably presented at former meetings of this Association by prominent members and instructors in pharmacy. Professor McGill, of Nashville in 1904[1] very ably set forth what was then considered as needed to bring about greater uniformity. It may be in place to review briefly his paper. His statistics were gleaned from 48 schools and colleges of pharmacy. He found among these institutions the following degrees conferred: Graduate in Pharmacy, Bachelor of Pharmacy, Master of Pharmacy, Doctor of (or in) Pharmacy, Bachelor of Science in Pharmacy and Master of Science in Pharmacy. To show the lack of uniformity he cited statistics to show that the degree of Ph.G. was conferred for work ranging from 40 to 72 weeks. Greater uniformity was found to exist in the requirements leading to the degree of Ph.C., but in the Bachelor of Pharmacy, Master of Pharmacy and Doctor of Pharmacy much incongruity existed. For

*Read before Section on Education and Legislation, A. Ph. A., Chicago Meeting, 1918.

[1] Proceedings A. Ph. A., 1904, p. 115.

example, the title of Doctor of Pharmacy in two cases required five years' study and presentation of satisfactory thesis and one case where 2 years' work was required after taking Ph.C. degree, or one year after taking the Ph.M. degree, while the title of Doctor of Pharmacy was conferred by two schools as their only degree, presumably for the regular two years' course.

Doctor McGill remarks "It will not be many years before no reputable college will dare to confer the degree of Bachelor or Doctor upon a candidate who has not taken the baccalaureate degree," or its equivalent.

Last winter, at a meeting of the Association, representing the institutions of higher learning, a motion was offered to be acted on at a later meeting—which, in substance, is intended to discourage and even prevent the recognition of academic degrees for work below that generally recognized as requisite for the baccalaureate degree. Doctor McGill, thirteen years ago at the annual meeting of this Association, deplored the fact that these degrees in pharmacy were sometimes conferred upon some who had not even a high school education and when professional training was limited to a short course in a few branches of science pertaining to pharmacy. He asks: "How does the world regard this practice?" The answer of the academic world seems to be fairly well crystallized in the action proposed to be taken by the association referred to.

Twenty years ago there was some agitation favoring the title of Doctor for the pharmacist but making this worthy of recognition by adequate training through a proper curriculum. H. R. Slack[1] suggested that this would elevate the standing of the pharmacist as well as the teaching of the profession. Mrs. Mallory Taylor aptly says that the old proverb: "People will live up to their clothes" is applicable; their mental and moral barometer will rise and fall accordingly. She advocates a professional suit for the pharmacist. She gave her impression of her professional status when she said, speaking as a druggist: "We belong to the threadbare class." These sentiments expressed twenty years ago by one from the ranks of the practical druggists, are considered by some of the same class of to-day, as sentiments characteristic of the "theoretical harp stringers" or "the scientific flute players"—otherwise called "professors." Be this as it may we are thankful for the many who have still high respect for the calling and have the courage, against odds, to make every effort to elevate it.

College degrees have an important bearing and meaning to the student, his instructors and others interested in him and his calling. Some eminent educators have said that it would be a good thing if we could abolish college degrees altogether; if we could have knowledge and training sought for its own sake rather than the prize supposed to be embodied, or inherent in prize, but it appears that we have to take human nature as we find it. In student life there are at least two incentives—the knowledge itself and the prize which we name the degree conferred. Of the two incentives the former, to the ideal student, is the chief incentive, the latter quite subordinate. The magic influence enveloped in the idea of degree may be accounted for partly in its historical connection. Academic scholarship as early as the 13th century, was rewarded by the conferring of honorary degrees. A body of statutes was adopted for the University of Paris wherein the term Bachelor,

[1] Proc. Am. Pharm. Assoc., 1897, p. 356.

Master, and Doctor has appropriate recognition, standardization and restriction. The underlying motive in these statutes, succinctly stated, being the upbuilding of civilization through training and scholarship, which were, in a measure, standardized, an effort to accomplish this was stimulated. These motives and these ideas in the 20th century still cling to the meaning as well as the purpose of degrees. Pharmacists have appropriated and practically applied this time-honored method of stimulating scholarship as evidenced in the numerous schools and colleges which have been established through their combined efforts, the vitalizing factor in the whole system being the advancement of scientific pharmacy. The result has been that we have a wide distribution of pharmacists who have been not only well trained but who have the true scientific spirit—pharmacists of whom the professions—medicine and pharmacy, as well as the public, may well be proud.

But it is a fact to be deplored that there has grown up, beside this scientific spirit, an opposing one, one that has been characterized as the modern spirit in pharmacy, the extreme advocates of which would do away with schools, degrees and all restrictions, would even dispense with the drug store itself except for exploitation—merely using its name for trade purposes, as if pharmacy had no rights that should be respected. A gentleman, interested in medicine and in pharmacy as well, said to me that these modern stores, masquerading as pharmacies, would soon put the real pharmacist out of business if the pharmaceutical profession did not protect itself against the invasion. It seems to me that we have come to a time when not only the pharmacist should be standardized but also the drug store. That is, in addition to demanding a definite professional training on the part of the pharmacist, the public, by law should demand a certain minimum of equipment in the way of stock, apparatus and prescribe and define the conditions under which alone the dispensing of drugs can be safe and accurate, such as character and quantity of stock, cleanliness, care of apparatus, etc., etc. In this direction in some countries legislation has gone so far in detail as to require that a licensed drug store must possess, for instance, "a balance that will have a delicacy that would turn by the weight of a milligramme. It was only through some very meager restriction of this sort that Kansas through legislation was able to drive out the saloon keepers masquerading as druggists—the stock of a drug store was defined, to protect the real from the spurious. I do not mean of course that, in order to meet requirements such as to protect the good name of pharmacy the druggist must needs renounce "side-lines" and "sundries"—those in which he may find scope for his business ability and enterprise, but while he may have free scope here let him, if he attempts to perform the service of a pharmacist, do so with a show of equipment, at least, and display some respect due the vocation of pharmacy.

The medical profession, partly through outside pressure, has had new life breathed into it by having a higher professional standard urged upon it. It is needless to say that practitioners of medicine welcomed this outside pressure through the Carnegie Institution, and pharmacy might well invoke this same assistance to bring about a better respect for itself. Our colleges and schools must have the courage to blaze the trail. It would be fine, indeed, if we could broaden our minimum college courses, taking systematic courses in bacteriology and biology for example, which are becoming more and more necessary, adding another year of 40 weeks as Ann Arbor has done to the pharmacy course.

I have pointed out that there are those in our own ranks who would abolish the drug store except for the purpose of exploitation. There lurks in other quarters, without our company to-day a small, influential, honest, but totally misinformed class of medical men who would go so far as to abolish pharmacy altogether. Modern medicine, they claim, has so little of medical therapy in it that the drug store, especially the modern type, is entirely superfluous in our communities. To them pharmacy is synonymous with ignorance and humbuggery. Pharmacy schools give only smatterings in their courses; little value, if any, is attached to the name of pharmacy. This class doubtless is one among those who are opposing the recognition of a pharmaceutical corps in the Army. Of course these medical men forget, if they ever knew, that all that is modern and worth while in therapeutics to-day, even the small part they find themselves compelled to employ in their practice is not the product of medical men themselves, but very largely indeed of pharmacists, chemists, and scientists not connected with the practice of medicine. Who but the pharmacist, directly or indirectly, has evolved the numberless concentrated principles, biological products, the hyperdermic tablet, suppository, the glass pearls, gelatin capsules, the sterile syringe, to say nothing of a host of other remedial agents and their standardizations practitioners employ?

Pharmaceutical research—its direct and indirect bearing upon Medical Science, needs to be put forward! Medical men need to be told that all that belongs to Medicine has not originated with them or the profession they represent. We need young men of high degrees of scholarship to speak for pharmacy. As Mr. Hendrick says of the chemical profession—"It needs to be properly advertised!" We need young men trained to make valuable contributions to the healing art and to show that all creative art and skill does not reside in the one profession. It takes men well trained to do this—to drive the lesson home that we may guard what is justly ours. The college degree is surely one of the means to this end.

One of our prominent pharmacists, in a recent article, seems impatient of our schools that teach so much science, and that they pay so little attention to the fact that the druggist "has to pay his rent" and only once in a while has to figure out the difference between an atom and an atomizer. If such an implied pessimistic view of pharmacy should prevail, pharmacy might wisely agree to abandon degrees, and all restriction, and surrender itself completely to department stores, then there would be no meaning to, nor any more need for a degree for the pharmacist than for the grocer's clerk.

If the aim of this paper, wandering as it is, has not been made quite clear, that aim may be stated in a short closing paragraph.

Nothing portrays more keenly the spirit of pharmacy than those who reflect this spirit in word and deed. What are we doing to create and uphold the proper spirit? Any one who cynically criticizes the profession of pharmacy is doing his bit in chanting what may end in the requiem of that profession. We are thankful for constructive builders, for those who are eager to help in building our time-honored profession. Some do not know how, but do not oppose, nor indulge in the foolish pastime of trying to minimize or even nullify the work of those who are active in constructive effort. May the efforts of the latter grow less and less apparent.

THE CHEMICAL LABORATORY. SIDE LIGHTS IN ITS MAKING.*

BY FREDERIC E. NIECE.

Prior to the present conflict, there hung in the Louvre at Paris an interesting picture, depicting in a most realistic fashion an alchemist at work in his sixteenth century laboratory.

The painting portrays a low, dingy basement, showing furnaces arranged here and there, which have in later years been transformed into our modern vapor chambers.

On the floor, scattered about this aged creature, may be seen many crude looking implements of the time. Closer observation reveals some worn-out alembics, charred and time-worn crucibles, scarred and battered retorts, mortars, pestles, and whatnot. Suspended from the ceiling one may see huge specimens, representative of prehistoric times. Huddled about the strange, old, gray-haired figure is a group of intensely interested students. Their facial expressions and inclining attitude foretell amazement, as they watch each move the decrepit exponent of alchemy makes. Their attention seems to be completely absorbed as they appear to listen with the closest order to each word the old man utters in explanation of each step in the obscure process which, as they hope, will lead to the creation of the proverbial "philosopher's stone:" the "ancient stone" to which is alleged the ever ready power(?) to transmute the baser metals into gold—the noblest of all the noble metals.

It also appears that he is divulging to this select few, with the greatest minutia, the secret involved in the search for that "Priceless Elixir" with eternal virtues that are so conducive to that much envied desire of "long life."

The entire make-up of the picture is one of absorbing interest and seeming seclusion, for apparently there is no desire to publicity, as the old, bent-over creature, in his own manner goes on with his vivid portrayal as to how it shall all come to pass. But as centuries have come and gone we have earned to realize how vain have been his hopes but how fruitful have become his efforts.

Too true has this since become, for it was upon this very crumb of an ill-founded tradition and mistaken belief that the foundation of a most wonderful institution was first laid—an institution small and poorly conceived in its beginning, but large, spacious and indispensable in its completion.

Thus we can picture in our mind's eye, if we will, the inception and creation of our modern chemical and pharmaceutical laboratory, embodying as it were a series of trials and tribulations by reason of its associations with misguided theories—a struggle for existence in the face of a most fantastical opposition; and its triumph, because of its proven virtues in spite of the most adverse circumstances. In a measure the labors of these early workers were not entirely all in vain. No, for aside from their ignorance, superstition and lack of proper training, their reward has been great, for they gave the laboratory its impetus and to-day we find it a most powerful factor in both our scientific and commercial worlds.

The very thirst for knowledge by these poorly advised creatures was the making of all that the present-day laboratory implies.

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* Presented to the Section on Historical Pharmacy, A. Ph. A., Atlantic City meeting 1916.

Many of the results, as we have studied them, from the dark ages up to and through more recent centuries, have changed but little, while years of toil may appear to have resulted in the waste of time, the loss of money and the sacrifice of patience, have, by persistency of purpose, turned impending failure into lasting success, notwithstanding the hardships attending the efforts.

How true this is can be no better realized than in the experiments of Archmedes over two centuries before Christ. His method of detecting metals by their specific gravities has not changed in principle, only in application. So we may gainsay, that these earlier workers and the workers of the middle ages left a soil so fertile that those who took up the tilling where they left off gave us as a result much good ground in which to develop our own abilities. By virtue of all this there was born out of it many whose lives have been guiding stars in the firmament of experimental research, an inestimable heritage of scientific wealth.

Take for instance the immortal Justus von Liebig; the great investigator, Davy; the ill-fated Lavoisier; Dalton, of atomic theory; Bunsen, Wöhler, of organic chemistry fame; Priestly, the discoverer of oxygen; Cavendish, of hydrogen; Ramsay, of metal transmutation fame; and the Curies, with their discoveries in radio-activity; Pasteur, Ehrlich and others,—all of these and many others were little thought of, much less their achievements, until their efforts were confirmed in the physical or chemical laboratory and the results thereto thoroughly established and thus given to the world. To the laboratory of whatever purpose, we owe much for that which it has done it has done well. It has been instrumental in not only revolutionizing industry but creating many new ones. It has caused a better people, a greater nation and a safer world.

Liebig, in addressing the British Association for the Advancement of Science, in 1852, said:

"One of the most remarkable features of modern times is the combination of large numbers of individuals representing the whole intelligence of nations, for the express purpose of advancing science by their united efforts of learning its progress, and of communicating new discoveries. The formation of such associations is of itself an evidence that they were needed. It is not everyone who is called by his situation in life to assist in extending the bounds of science; but all mankind have a claim to the blessings and benefits which accrue from its earliest cultivation. The foundation of scientific institutions is an acknowledgment of these benefits and this acknowledgment proceeding from whole nations may be considered as the triumph of mind over empiricism. Innumerable are the aids afforded to the means of life to manufacture and to commerce by the truths which assidious and active inquirers have discovered and rendered capable of practical application. But it is not the mere practical utility of these truths which is of importance. Their influence upon mental culture is most beneficial and the views acquired by the knowledge of them enable the mind to recognize in the phenomena of nature, proofs of an infinite wisdom for the unfathomable profundity of which language has no expression."

But let us now reflect a bit and learn a little of laboratory appointments and surroundings during a time when some of the epoch-making discoveries were formulated. Strange to state, the conditions of our earlier laboratories were deplorable even up to the latter part of the last century.

A number of the greatest scientific achievements have been attended with the crudest form of laboratory equipments imaginable, and under the most trying circumstances.

Perhaps this condition of affairs was largely responsible for their successful development.

A few interesting episodes in this connection taken at random from many sources will clearly show to what extent it was necessary to go in order to accomplish that which the investigator set out to do.

The early day scientists had no easy road to success, for they toiled in rooms and shops far from luxuriance and accommodations.

The earliest record we have of chemical laboratories is that found in the days of the Egyptian Pharaohs, where the temples had adjacent buildings presumably for chemical operations, since the hieroglyphics found written on the walls of these buildings point to the use of assaying, coloring and annealing processes.

Sir Robert Boyle, the father of modern chemistry, while investigating the "elasticity of gases," and who developed the law which now bears his name, used a tube of such length that he could not conveniently employ it in his laboratory room. He was therefore compelled to continue his delicate experiments by the use of the stairs in the same building.

It is also given from reliable sources that Newton performed all of his work on the "resolution of the light rays" in his lodgings at Cambridge. Our own but immortal Franklin, it is said, did most of his work at home by putting up insulated rods, seizing every chance he could to apply his tests when the air was heavily charged with electricity.

With Berzelius, who gave us many shining lights, matters appeared to be very homelike, for it is common talk that he carried on most of his experiments in the kitchen of his home where, it has been said, "cooking and chemistry went on together."

In the year 1824, Justus von Liebig, the founder of the modern chemical laboratory, established his laboratory at the University of Giessen. Its description was that of an old, dilapidated wooden structure, which was given him for the purpose of performing his experiments. Here he carried on his researches and taught students at the same time.

In this manner the question of agriculture was successfully given a scientific basis. The value of his labors has never been fully appreciated but perhaps realized for the wonders it has worked in the interest of crop productions. With Lord Kelvin things seemed to have improved but very little; for many years his laboratory was an old unoccupied wine cellar in one of the old university buildings at Glasgow.

In Lord Kelvin's physical laboratory experiments were conducted which made possible the laying of the Atlantic cable.

Claude Bernard, who has been termed by many "the prince of experimenters," toiled daily in an old damp cellar, one of those wretched Parisian substitutes for a laboratory which existed even up to but a few years ago in some remote places. Bernard gave it the appropriate calling of "The Tombs of Scientific Investigators." The case of Gay Lussac was very much the same, and in some respects both serious and yet comical. Gay-Lussac conceived the idea of wearing wooden shoes to protect his feet from the dampness of the cold ground. It is reported that he suffered severely with rheumatism, hence this novel means to enable him to continue his experiments without discomfort. It was Gay-Lussac who gave us Liebig.

This is a fairly good taste of scientific research under difficulties and reveals

a most worthy example of persistency that is beyond comparison. Such characters must have surely loved their work for there can be no doubt but what Gay-Lussac did. In a few unappointed, squalid rooms in Berlin, we are told, that H. G. Magnus taught and performed experiments to students from whence came such geniuses as the great Helmholtz and the famous Tyndall, the one-time railway engineer but later on a student under Bunsen.

At the *Ecole Normale*, situated in the *Rue d'Ulm*, just in the rear of the Pantheon, Paris, in close proximity to the Sorbonne, in a small one-story building, Pasteur made some of his famous discoveries. At first he had only one small room, but the place grew with his achievements until he occupied the entire building.

Dr. Roux, famous for his discovery of diphtheritic anti-toxin, did some of his best work in a very small room in the same building. He had not as much as a fireplace with which to add warmth and comfort to his surroundings.

Another was Louis Thuillier, after whom Rue Louis Thuillier was named. Though only a student, his bacteriological researches in the same building made him famous and caused a tablet to be erected in his memory for the self-sacrifice he made in the cholera epidemic in Alexandria. This unpretentious building containing, as it did, the laboratories of such great men, was given the name of "The Mecca of Bacteriologists."

Thus we have a reflection of the evolution of the laboratory in another direction.

In a once private dwelling two rooms were set aside as a laboratory at Heidelberg in the year 1846, by Prof. P. G. Jolly. Here was laid the cornerstone of the more modern laboratory. It grew in size and enlarged in accommodations to such an extent under the supervision of Bunsen and Kirchloff that their wonderful observations with the spectrum was thereby made a possibility.

One of the more recent cases and strangest of all was that of the Curies, who worked on radium. It has been given in print that the Curies developed radium and studied its properties under the greatest difficulties. The laboratory of Pierre Curie was situated in the school where he taught physics—"a small, single room, an inconvenient workshop and extremely unsuited for serious investigations, in fact almost unusable."

At the school of physics and industrial chemistry, where all of his researches on radium were made, "the installation was a miserable one, consisting of barracks made of boards loaned by the city of Paris." "The room used for physical experiments was smoky, low, dark, moist and cold." "It had none of the conveniences necessary for carrying out delicate experiments and had no plant for furnishing electric energy, heat or high temperatures." "As for the chemical laboratory that was more than ancient."

"In the large glazed shed there was to be found two plain modern tables for holding flasks, capsules and furnaces. On these tables all chemical operations were performed. There was no hood to carry away vapors, and every time there was a chemical reaction the room was filled with fumes that made the air irrespirable, so poor was the ventilation."

Lastly, Curie had no laboratory assistant other than his ambitious wife, who was before her marriage to Prof. Curie, Marie Sklodowska, a Polish girl, who shared with him in the greatest of all recent chemical discoveries, that of radium.

I am advised that only a few years ago was there much improvement in their laboratory surroundings, but owing to the importance of their discovery, the University of Paris enriched its laboratory equipment by installing more modern appliances.

As a reward to this noble little woman, the University of Paris tendered her the chair of radio-activity, which she accepted and, by the way, is the only professorship in that institution occupied by a woman.

In 1903 she shared with her husband half the amount of the Noble Prize awarded for work in physics. A few years later she was personally awarded the full prize for her work in chemistry. The research and experimental laboratory has grown to wonderful proportions within recent years, both on this and the other side.

Every institution of learning, regardless of the size, has some form of laboratory equipment connected with it. On the other side the laboratory constitutes one of the most important divisions of any institution needful of one, be it educational or industrial. Switzerland is not a very rich country, comparatively speaking, but Zurich boasts of its laboratories that have cost over 4,000,000 francs.

Germany's physico-technical laboratories, to which Werner Sieman has himself subscribed several hundred thousand dollars, are perhaps the most complete in the world. These were established in the fall of 1887.

In this connection consider the most beneficent gifts of Mr. John D. Rockefeller, of this country, to that of the research laboratories which bear his name. The Institute for Medical Research, under the able direction of Dr. Simon Flexner, is truly an institute of laboratories, to which Mr. Rockefeller has already given upwards of $12,500,000, which makes it the most thoroughly appointed institution of its kind in the world.

Editorially the New York *World* had this compliment to pay with reference to this most amply endowed medical institute:

> "The achievements of the scientists engaged in its work had already made it one of the most useful and most famous. Some of them, indeed, have by their discoveries so advanced the sum of human knowledge concerning the causes and the nature of diseases as to have gained rank among the foremost of the age. It is therefore not merely wealth but science and genius and keen discerning labor that Mr. Rockefeller has by this disposal of a portion of his fortune placed at the service of human suffering."

The various laboratories of Cooper Union, New York City, where the penniless but ambitious boy, native or alien, has an equal chance for a scientific education with that of the richer in paid institutions, was made possible by the keen farsightedness of its benefactor, Mr. Peter Cooper.

This is the only institution of its kind in America, and perhaps the entire world, that came into existence and accomplished so much under circumstances most unusual.

Cooper Union maintains a high standard of education, which is advancing yearly. It occupies very expensive realty quarters and is independently supported. All of this has been amply provided for by its founder, Mr. Cooper. Its chemical laboratories alone are modern and spacious, completely equipped and efficiently managed by a corps of experienced instructors, many of whom have risen from the ranks.

From a small beginning the laboratories have grown to very large proportions, and during the last ten years have undergone many notable changes, so that to-day the chemical department stands as a most unique part of the entire institution, which is unsurpassed by any other of a similar nature.

Information leading to laboratory knowledge in chemistry, botany, physics and the biological sciences, is now being taught by mail by the extension department of the University of Chicago.

The laboratories at Glasgow now occupy palatial quarters in the new building of the university, where great prominence is given them.

The new medical laboratories of the University of Pennsylvania, costing over a half million dollars, are marvels to behold. Likewise, the various laboratories of Columbia and Johns Hopkins Universities are most modern and up-to-date.

Conceive the vastness of the laboratory forces of the United States Government as it concerns its Department of Agriculture alone, with over fifteen separate and distinct departments all equipped with laboratory facilities of the very best.

Take that of the Bureau of Chemistry and that of the Animal Industry alone. These are truly wonderful and powerful agencies in the world's economics.

A few others, like the Bureau of Standards, the Hygienic Laboratory of the U. S. Public Health Service, with its tributaries reaching into all parts of the United States. By its creation America has been immensely enriched, and its work conducive to a more healthy nation.

This, too, was not without its bitter trials, for as late as 1901 Congress approved a paltry sum of $35,000 for a new building for the laboratory on a site in the old naval observatory grounds at Washington.

Even fire and life insurance companies have been specially equipped with testing laboratories. Every asylum, sanitorium and health resort has its laboratory of some sort.

Deprive the various State agricultural experimental stations, the State and municipal boards of health, hospitals and clinics, the medical, pharmacal, dental, electrical and mechanical institutions of their research laboratories and you will then have destroyed the elements of their usefulness.

No private, public or academic institution of learning can dispense with its laboratory outfit.

Industries of every description feel and see the need of specialized laboratory equipments.

More recently, growing out of the European conflict, the United States Government has had in the course of formation one great research and experimental laboratory for the U. S. Navy, which will have a series of chemical, physical, electrical, mechanical and explosive laboratories. The cost of erection is to be $5,000,000, with an annual expenditure of a little over half the above amount.

The University College of London, realizing chemistry's importance in the future prosperity of the nation, has just completed the construction of a new chemical laboratory that will surpass in equipment anything of a like nature in the entire world. From this alone we are to understand that the research laboratory has become a strong factor in the industrial and economic relations of the universe. What a wonderful picture this would reveal to our old friend, the alchemist, if he were permitted just for a moment to observe its present vastness. What

would be his reply at just receiving a mere peep at the advancements and accomplishments growing out of his efforts these last few decades. Surely he would be amazed into speechlessness.

So we may pay homage to the toilers of alchemy of the "dark ages."

Praise them for their persistency and their desires, hopes and failures, for in a manner we may perceive how the mighty oak of our present laboratory has sprung up out of an acorn of ignorance and superstition.

And yet less than half has been accomplished.

HOW PHARMACISTS' WIVES MAY BE OF SERVICE TO THEIR COUNTRY.*

BY MRS. D. F. JONES.

We all love our country and how gladly have we responded to its call to do our bit, even if there are over twenty patriotic organizations for us to join, each one with an appeal we find hard to resist, we can only live one day at a time to produce the work required, and we must not become discouraged because we cannot accomplish everything.

The Red Cross work should come first in interesting pharmacists' wives, not only because of its close relation to the work of the pharmacist but for the alleviation of suffering at large. Money is most needed for this work, for the work must go on and we must aid in this labor of mercy, not only with money but time and effort as well. The article by Ex-President Taft in the June (1917) number of the *Ladies Home Journal* describes the object and work of the Red Cross so well that it is not necessary for me to repeat it, as everyone should be familiar with the work by this time.

I know of no other class of women more helpful than pharmacists' wives in times of peace, so I feel sure they are responding quickly to the rigid requirements of war. This World's War has made it both fashionable and patriotic to practice thrift which means making the best possible use of all we have in time, money, energy and material, and not trying to spend more of anything than we have. The slice of bread stares us in the face like an ogre and to see it wasted is a kitchen calamity. It would be a greater calamity if we served this same slice of bread once too often, for whatever we do in keeping war away from our borders, we must never let it creep over the threshold of our homes.

Because of our great excess of food we have become extravagant so we are admonished before throwing anything away to stop and ask ourselves the question: "Can it be used in my home or some other home?"

We, as women, are not in a position to play a large part in the actual fighting, but we can play a most consequential part in caring for those who fight for us and for their women and children. This we can do in our own homes and by encouraging and helping others to do so. We must aid the poorer classes in learning conservation, and I am glad we have societies organized to help the people of all classes to aid themselves. It is wonderful how quickly women have responded to this great call to service, and how efficient they have become in all phases of

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* Read before Women's Section, A. Ph. A., Indianapolis meeting, 1917.

work formerly done by men. Think of 25,000 women in France working on the railroads cleaning coaches and clambering over engines; and their bosses say their work is done quicker, better, and in a more cheerful manner than the men ever did it.

The Government of France has opened the technical schools for their women and has been an encouragement in every way, while the women of England have been discouraged by that Government and have only received help through private firms. Nothing daunted, they have compelled recognition, for England is a world of women in uniform, an army of nurses, messengers, porters, elevator hands, bank clerks, every place that men formerly occupied.

The women of Germany, so patient and stoical, starving in many communities, demand our praise and admiration. We can profit by their wonderful example and learn from their perfect system of handling these serious questions that are confronting them. They realize what war means and Red Cross work to them is serious business because they are constant witnesses of suffering.

One especially sad thing about the war is the Child Question. Crime amongst children has increased by a large percentage on account of neglect. And right here just a word about the children of our own country—our most vital resource. While the motherhood has been appealed to in women as never before by the pitiful tales of war orphans abroad, it is appalling to see and read of the neglect of children, not orphans, in cases right here at home. Mothers prompted by patriotic impulse cannot afford to spend their time away from home even for a patriotic reason when they cannot account for the doings of their own children. A timely suggestion has come from the Department of Education, that our Kindergartens, Elementary, and High Schools should run to their fullest capacity throughout the entire year. As the fathers are withdrawn from the home and the mothers enter the industrial field, home-life must inevitably be disturbed and home-care dangerously relaxed. To keep the schools open the entire year would be one of the most effective means of unavoidable domestic neglect.

Of course we, as pharmacists' wives, have always been in training, so we can adapt ourselves to unexpected calls on our time and energy. We have always been ready to take the place of the clerks, do the collecting, etc., in addition to home management and child raising, without the aid of servants; so if the call does come for loved ones to join the Pharmaceutical Corps we are ready to step nimbly into the harness and "pull for all we're worth." Meantime we are going to make home-life even more pleasant. We will look after the children, and if Sarah Tyson Rohrer does say it, we will serve something besides the "unsalted dish of rice" she advocates and prepare the appetizing meals our husbands always have liked and through it all use common sense with economy.

Mrs. D. F. Jones,
Watertown, S. D.

MODERN MERCHANDIZING.*

BY LOUIS K. LIGGETT.

In introducing his subject on Modern Merchandizing before the New York Branch of the American Pharmaceutical Association Mr. Liggett traced the history of Modern Merchandizing to John Wanamaker when he established the one-price system. He gave an account of the counter-action of druggists in Detroit to compete with a grocery firm that had added a drug department and established cut prices of patent medicines, by selecting a drug firm to compete with the latter; how the venture proved a fortunate one for the firm selected, Gray and Worcester, and the stimulus to larger sales in many drug stores. Fifteen years ago Mr. Liggett, said, there were not more than ten retail druggists who did a business of over $100,000 annually and the adoption of modern merchandizing methods has been instrumental in the development. This brought the speaker to the consideration of service in modern merchandizing and the remainder of the address is given as reported.—EDITOR.

"Service to-day is a greater factor in getting volume than price. It is particularly so now and will be so for a considerable time to come, although I do not doubt but that when this unfortunate war is over and the natural depression comes in two or three or five years hence, price will probably then be a factor.

"At the present time Modern Merchandizing consists primarily of *service*. Service is not only in giving proper attention to customers and good salesmanship, but in addition may be defined by having merchandise in stock when your customer calls for it, plus your ability to see that you are not overstocking and that you are turning your stock as often as is expedient with keeping good merchandise in stock. That, to my mind, is the first principle of developing volume. You must back up service with advertisements, either window displays or newspaper advertising; you must back it with merchandizing ideas—advertising something that does not materially affect the drug store but brings people into your store. You can back it with any number of conceivable schemes for getting people into your store, some of which you will find can be overdone if you don't watch them closely, for almost all schemes for getting business simply mean that you are appealing in a novel way to the minds of the people, and you may over-play your hand before you get through. Nevertheless, all of these schemes do boom business.

"There is one other factor in getting volume, namely, location. You could put the most complete drug store, with the finest and best assortment of stock, over on Park Avenue, in back of the Grand Central Station a block or two, and you would starve to death in a few months, but if you put the same store on the corner of Broadway and 42nd St. you will prosper. To get volume you must go where the people are.

"Having started on the road to volume, your next point is to watch and see how much it costs to get that volume. If you are getting it by advertising ideas that are expensive, or by over-clerking your stores so as to render that so-called 'clerk service,' whether you are paying too high a price for the volume you are

* Parts of an address before New York Branch A. Ph. A.

getting, are all things that you have to think of, when the volume starts to come to you. I mention these because they all have an effect on gross profit and hence affect your net profit. Special drives also have an effect on gross profit. Gross profit, after all, is the difference between what you pay for an article and what you sell it for less the depreciation on the articles that you have on hand. You never know exactly what your gross profit is until you have inventoried your business so completely and so fairly in your own mind that there can be no question but that you have made the proper charge-off for your over-stock and your valueless stocks of merchandise.

"I might say right here that in our business of running retail drug stores the most valuable thing we have is the inventory system. We have volume, but it would mean nothing to us if it were not for the check we have on our merchandise. Five years ago not only the Riker business but the Liggett business was receiving in their banks each day from the stores only 95 cents on every dollar's worth of merchandise sold to customers. The other 5 cents was lost in one of three or four ways, either through theft, unreported breakage of merchandise, unreported transfers of merchandise or depreciated merchandise, merchandise that was valueless and was never found to be valueless until a careful analysis of the inventory of each store was taken. To-day operating under very close supervision our shortage average for the first nine months of this year was less than 6.7 of one percent. It means a difference to us in profits of considerably over a million and a quarter dollars at the present volume of business. So you will see there is something to the gross profit column besides establishing a selling price and considering what you patch on your bill.

"Your expenses and what they apply against are also a snare and delusion to the man who has not an accurate accounting system. Expenses to-day with the modern druggist are what I could liken to an instance fifteen years ago where a retail druggist in this city, who had a very large business and who was operating in connection with it a manufacturing plant and making his own goods. When asked by me what his goods cost him, how he arrived at his selling price said, that he takes every bill that comes in and figures the cost of an individual package, plus the cost of the bottle and the cork, etc., thus arriving at the selling price. I said, what do you do with your overhead expense? He replied that he didn't have any, that he charged all labor that is directly confined to the manufacturing against the cost; that he used his clerks to help out, to bring down stock and sometimes, if he had a wholesale order, he used the clerks in the retail stores, etc., etc.

"Many merchants are doing the same thing to-day—carrying a burden of expense that they are not charging to any department of their business.

"The other day a manufacturer of automobile bodies sent me a bill for $28.00 for making a little leather cushion for my chauffeur's back. I asked him why he charged $28.00 for it when I could buy the same thing for five or six dollars in any department store. (The manufacturer figured up the material and labor cost which came to about $10.00, and the balance he explained was for overhead.) That fellow isn't very far off at all. He is doing an individual business and has a large overhead. He must have a lot of waste time in his plant. He undoubtedly is careless about his lights, etc. He apparently has had at sometime one of those 'efficiency men' checking up expenses of doing business.

"I brought this out to illustrate the fact that there are too many retailers and manufacturers in business who are going along figuring their expenses upon what they see set down. The true expense is the total of all items necessary in conducting a retail drug store—labor, rent, light, heat, clerk service, janitor service, window trim, the purchase of signs, or the newspaper advertising done, paper, twine, glassware at soda fountain, and so on, through the numerous things which total the expense. There is not one druggist in a hundred in this country who gets a total together yearly and looks it squarely in the face to see just what his position is, and he ought to do it monthly.

THE INVENTORY.

"I am president of a Fire Insurance Company and it is almost a daily, and I know it is a weekly occurrence, to have a fire in a customer's store, where we find that no inventory had been taken since the man started in business, or else he did inventory on the 31st of last December to the 10th of January, all the time doing business, which means that they didn't get an exact inventory. This is an almost daily occurrence. It is a different thing, as I have found from experience, to have your own store managers and clerks take inventory and have it right. We never got a correct inventory until we established inventory crews and actually shut down business while the inventory is being taken and then adjust the inventory to the amount of merchandise sent into that particular department. Until we did this we did not get at the 5 percent.

"Now these are just a few of the rudiments that have brought about modern merchandising. With these have come the development of the chain stores. The one-price system started by Wanamaker brought the one-price system to the Atlantic and Pacific Tea Company, with its tremendous developments. It extended to the 5 and 10 cent stores and from that it went to the cigar stores, then it went to the numerous grocery stores and now into the drug stores. These, of course, are the larger chains.

"The chain store system has been said to be a fallacy. A student of merchandising told me that the chain stores were doomed to fail; that they could not possibly succeed because they would break of their own weight. Now my personal experience is quite the contrary. The more weight you have, the more you have to work with. The stronger the organization, the more men you have to gather around you from whom you can select those who are to carry out your plans. Their development is only limited by the ability to secure the men to see the proposition through.

"Therein again modern merchandising is doing a world of good. It isn't always the man who is the most ethical or has the most complete knowledge of the drug store that makes the best success in operating a retail drug store. It is the man who is most capable of handling and getting from those working with him all the good in them. I do not mean all the hours of work, but all the ability. One who can shift his help around until he has a smooth working organization.

(Mr. Liggett then told of a visit to a western city to see why a certain store was falling down. Upon entering the store he found that the manager was out, and the assistant, when he found who his visitor was, greeted him in a loose, careless fashion, which explained the loss of business, namely, lack of back-bone in the store.)

"So you see that modern merchandising has got to take into consideration the human element.

PERSONALITY IN BUSINESS.

In answer to a question as to whether personality played an important part in competition, Mt. Liggett said:

"It is contended that the chain stores are such severe competition that the retailers are driven out of business. Four and two-tenths percent of the failures have been found to be due to competitive methods and 34 percent due to lack of business management on the part of the retailer. In the largest development of chain stores personality is worth a great deal in the drug business. It goes back to the question of service, the question of training the retailer gives his clerks, his standing in the community, etc., and attention to his trade. It doesn't always imply, as some people think, that they cannot be too friendly with their customers because they will ask to be trusted, but simply means a fixed principle of doing business, and that establishes personality as much or more than any one thing. There is no doubt about the fact that where personality dominates in a community that the chain store has the hardest kind of competition to overcome."

OVERHEAD EXPENSES.

Regarding overhead charges and the percentage cost of doing business, he said:

"These varied with the condition of the business. We have stores in New England that make 31–32 percent gross profit. We have stores in New York City that will make 37 percent gross profit. We also have stores in Toronto, Ontario, that make 22–23 percent gross profit. Expense accounts run in the neighborhood of 20 to 30 percent. In New England States, where gross profit is low, we have a very large volume of cigar business which is handled on a very low margin of profit. Drug stores have had control and still have control of the retail cigar business in New England. Larger cigar stores do not exist in New England like in New York. We average in cigar business somewhere in the neighborhood of 9 percent, but sometimes it runs 20 and 25 percent of the volume and with so large a volume on a small profit it pulls down the total gross profit. Why is it higher in New York? Because we have less cigar business, and more soda business, which has a larger profit. In the final net profit of a store it does not matter if we have a low margin in New England or a high margin in New York because where we have a high gross profit it costs us 16 percent to clerk a soda fountain and it cost us 4 percent to 5 percent to clerk a cigar counter in New England. Therefore you can see where you find a larger margin of gross profit you invariably find an increase in expense. If you take an average in the entire United States you will find the gross profit of the retail druggists in the neighborhood of 35 percent, and let me say right here, it is going down, down, right along. A recent analysis of the Pharmaceutical Department of the United Drug Company proves this. We found, after investigation, that a druggist in Atlanta was getting 60 cents for a 4-oz. prescription as an average price. After going over a period of five years we found that he now filled the same prescription at an average of 50 cents. Notwithstanding the fact that the cost of the ingredients has advanced, they are getting less for the prescription.

"The expenses of the retail druggists in this country will show between 26 and 27 percent of their sales and this does not include the question of investment and interest charges which we take into consideration in the chain stores. It does not include depreciation. One percent per month of the investment should be charged to depreciation and unless this is done the merchant is fooling himself. The retail merchant should speed up turnovers as fast as volume goes up. One of our drug stores turns its investment fifty-two times a year. Everyone should have a schedule of turn-overs for each department in the store.

"In the question of buying, more men go broke when over-buying than those who under-buy. It does not pay any man to buy any more than is necessary to operate his store. Four times a year is the least number of turn-overs you should consider.

" It pays you to take care of windows well and never put in a window display without the price on every article of merchandise. "

Mr. Liggett explained that the chain stores did a great deal in bringing back the sundry and toilet goods business to the drug store, which had been gradually slipping away from them.

Mr. Liggett said, "that the one-cent-sale idea was started in 1914 during a period of business depression, and was the result of efforts to hold volume; that there is nothing in the world that will add to the inventory like a one-cent-sale and at the same time it is one of the biggest business boosters he had ever come in contact with, and productive of good returns if run occasionally."

MODERN DRUG STORE ADVERTISING.

BY H. P. HYNSON.

The following address was delivered before North Carolina Pharmaceutical Association several years ago. It is just as applicable to-day as then and presents the subject of Modern Drug Store Advertising from a pharmacist's viewpoint and valuation. While it has been the intention to print the address before now, the opportunity did not present itself as it does for this issue of the JOURNAL, wherein an article on a related subject appears.—EDITOR.

"The shortest comprehensive definition of the word 'advertise' is: 'To divert or direct the attention.' The calling and holding of favorable attention is good advertising. The calling and holding of unfavorable attention is bad advertising; many of us are doing both unconsciously.

"Let me assure you that the very best advertising, especially in the retail drug business, is done without a trace of color or a drop of printer's ink. I believe that great harm may be done and much money wasted by the injudicious use of illustration and printing. Practicing cleanliness, order, system, true aesthetics, consideration, truth and honesty is the kind of advertising in the drug business that brings best results at the smallest cost. I could better tell you what I mean, I believe, by quoting freely from a recent address on this subject by Mr. J. Thomas Lyons, Advertising Manager of the *Baltimore News*, one of the leading dailies of this country. I was greatly encouraged to find that Mr. Lyons set forth my exact views upon this subject, as can be shown by the agreement of

his expressions with my own policies and practices during my business career, including now some thirty-four years. I read from Mr. Lyons' address as follows:

" 'Advertising does not necessarily mean bill boards, street cars, newspapers, blank walls, circulars, programs, letters, or any one specific thing, but advertising means anything that attracts the attention of one person or of a million people to your business or to you personally as the proprietor of that business, and if the retail druggist could only realize that almost every waking hour he is advertising or mis-advertising his business, he would pay some attention to the importance of correct advertising.

" 'If an efficient man were to be called by a neighborhood druggist and told to do what he could to increase the profits of the business, the first step, no doubt, would be to see if three or four dollars in white paint would not be a good advertisement in the druggist's window. If there was anything about the exterior of the building that might create the impression in the mind of the passer-by that carelessness and slip-shod methods prevailed within, that condition would have to be corrected.

" 'The interior of your store often has an unconscious influence, either favorable or unfavorable, on the prospective customer, and you can not get correct store atmosphere unless the things therein are right.'

"Advertising begins with the personnel of any business enterprise, beginning with the proprietor and his assistants, then all down the line to the porter and errand boy. In a recent address on the teaching of commercial pharmacy, I tried to set forth what a commercialist should present in his person and I had in mind such a person as would at once and most effectively advertise the enterprise with which he might be connected. One so equipped could render attractive service and service is what is desired by the world to-day, as I have styled it in a late advertisement of my own: Satisfying supply service—service you need, to secure Antitoxins, Vaccines, Serums, Bacterines, Oxygen, Normal Salt Solution, Infusion Apparatus, Camphorated Oil Ampules and other emergency requirements.

"I will take the liberty of reading some extracts which will describe the personal qualification of the pharmacist that makes the very best advertising matter, taken from the address to which I have just referred:

" 'The personality of the pharmacist, or of one who purposes to become a pharmacist, is of much importance. While pharmacy is a vocation requiring no great physical strength or power, it does require a considerable amount of endurance and, because the hours of attendance upon duty are comparatively long and because most of the time devoted to business is, necessarily, spent indoors, it is not the proper engagement for those predisposed to tubercular trouble or those with anemic tendencies. It is a business suited neither to a deformed nor to a crippled person; quick, well-ordered movements are required and extraordinary control and use of the hands and fingers are necessary.

" 'As successful salesmanship is an important qualification of the pharmacist and since the personality of the salesman has much to do with his success, appearance, or address, as it is more politely called, must be seriously thought about, much thought about. One can not, of course, change his features, neither can he materially alter his size, but there are some defects which may be overcome, by thoughtful and determined effort; rounded shoulders may be corrected by similar effort, assisted by braces; an awkward, ungainly gait or slovenly carriage may be easily changed.'

"Much of the same character might be said regarding personal cleanliness, dressing, manner and style of speech, and the proper training of the mind for commercial purposes. If a proprietor appreciates the value of personal attractiveness and possesses this strong advertising power, he will, naturally, seek such at-

tractions in his assistants. Much good money spent in advertising goes to waste, because of the fact that customers brought to the store are not pleased and held as customers because of the character of clerk that waits upon them. It may be thought by some of you that this is foreign to the subject under consideration, but I believe that many pharmacists fail to win success largely because they are not careful enough regarding the appearance, intellectuality and dispositions of their employees. Again, I repeat that attractive, pleasing personalities rendering efficient, satisfying service, are the most profitable advertisements a drug store can use. Service is the key-note of good business to-day. Service is the real inspiration of Rotary, that remarkable and fast-growing organization now numbering more than twenty-five thousand alert commercialists, who unite in believing that golden rule practice is the best advertising and that following the motto, 'He profits most who serves best,' will sell the goods.

"It is an old story that I bring you regarding directly-unpaid-for service as an advertising feature, but I would fail in my duty toward my audience if I did not emphasize the help it has been to me in establishing and maintaining a fairly profitable business. This directly-unpaid-for service must be rendered with as much grace and good feeling as that which wins the highest remuneration, otherwise it will be the veriest boomerang. If you sell stamps, keep all that will be called for and of every variety on hand and sell them with eagerness. It will pay you, even if you have to borrow the money, to use one or two hundred dollars, or as much as is required, for the purpose of keeping change for the accommodation of all who seek the favor. No expense should be spared in supplying directories and all such other appliances as will be helpful to those who may become or are your customers. Beginning with an ordinary pair of scales on which people could weight themselves, we have developed this feature until we now have a pair of scales which cost us $210.00 and we believe this is the best advertising investment we have ever made. Not only do people come in and appreciate the character of these scales, but physicians from many parts of the town send their patients to our store to be weighed. There are, in different neighborhoods, many other services that may be rendered. The suggestion of Mr. Lyons that a rolling chair be kept to be loaned, for short periods, to invalids in the neighborhood, and especially to be used in the removal of patients, is an unusually good opportunity to make an impression both upon physicians and the laity.

"No matter how attractive and efficient the personality of an establishment may be, it cannot, however, render the service that will make particularly fine advertising, unless it has the proper place in which to give such service. It must also have ample equipment.

"Often before a possible customer can ascertain what service you have to offer or see those who are to supply it, the possible customer is advertised away from both by the uninviting exterior or surroundings of the store. How is a stranger to know that you are the most capable and intelligent pharmacist in town or that you have the best and largest stock and employ the most attractive and agreeable assistants, if the building, the show windows and the signs, all positively tell him that such is not the case? How is he to know that you conduct your business in a serious and dignified manner when your windows and signs tell him that you are catering only to the frivolous, the gay and the ignorant? Does

he read that yours is a high class pharmacy carrying dignified side lines and, incidentally, supplying 'thirst quenchers?' Look at your signs, my good friends, and see what you are most prominently advertising, generally in impressive green or glaring red. Thousands and thousands of pharmacists in this country have sold their most valuable birthright in advertising for a very poor mess of pottage.

"Infrequent circulars, small spaces in the newspapers, counting these as good advertising, are as nothing compared with the very extensive space you are giving on the exterior walls of your building, in your show windows, on the interior walls of your store, in your fixtures, by the disarranged aspect of your stock, by the unkept, uncleanly condition of your store, to very, very bad advertising.

"Ruskin has given the world the seven great lamps of architecture, and architecture is most serviceable, and most enduring, when these seven lamps are allowed to brightly burn. As leading to the proper construction, arrangement and appearance of a drug store, I would use four of Ruskin's lamps, the lamp of 'Truth,' the lamp of 'Beauty,' the lamp of 'Power' (scope), and the lamp of 'Life' (energy). To these, I would add a lamp of Appropriateness, a lamp of Consistency and a lamp of Modesty. With these seven lamps leading me, I would have a store, in truth, just what it pretends to be; it would be truly beautiful, it would be large enough in which to do business acceptably, it would be a lively, fresh-looking place, and it would be well suited for such a business; it would be consistent in all parts; the prescription department and equipment would be quite as complete and as attractive as the soda fountain and its ceiling would not be more ornate than its floor covering. With all, it would be modest and not over-pretentious for the neighborhood in which it was located or for the customers who would patronize it. It would not make me, my clerks, and my little stock look like thirty cents. A store so conforming to the lamps mentioned would, of itself, be worth all it cost as an advertisement; I mean, it would do more and better advertising than could be possibly done by the expenditure, annually, of six percent of its cost, a fair interest on the investment, if such an amount were spent, even judiciously, in printer's ink.

"Too much attention cannot be called to the advertising worth, the pulling power of the appearance of things. This applies to building, to front, to windows, to fixtures, to appointments, to arrangement of stock, to business stationery, labels, and especially to containers, regarding their appropriateness and quality, and to packages and their wrapping. All these can be made most useful in establishing, enlarging and holding business.

"Color and color harmony give so many of us great restlessness, if our state of mind is as much disturbed as is our adjustment of colors. The selection of colors, wherever colors may be used, is a momentous question and, when you are in the least doubt regarding appropriateness of colors, or the blending of these, no matter for what purpose they may be intended, you are solemnly advised to 'play trumps,' that is, use none at all and resort to black and white.

"Considering the good or bad advertising effects, one should never be too sure that his taste, as to the appearance of things, is just what it should be. I have seen labels used by druggists who thought they were particularly attractive, which did violence to every principle of appropriateness and good taste.

"Considering all the advertising I have ever done for our retail business, and I have spent much time, thought and money in this direction, I believe the most profitable and helpful of all has been the attention given to the appearances of packages going out of our stores. No expense or effort has been spared to make them just as attractive and as pleasing as possible. It is a fact that many of the best and most profitable customers of drug stores, after years of patronage, have never seen either the proprietor or the store. These must be favorably influenced by the appearance of the packages and the service that is supplied.

"All advertising, whether the kind I have been describing, or the more generally recognized kind, is of no possible avail, if you do not have in stock the right kind of goods in sufficient quantities, properly marked, and conveniently and attractively arranged. If you ask me what next to the appearance of our packages I think has been the most profitable advertising, I would answer, without hesitation, the use of standardized galenicals. I began using these as soon as they were put on the market, about 1885, and have been using them ever since, and we have never, to my knowledge, had a single complaint about the activity of our alkaloidal preparations, but much more to our gratification, we have had many, many favorable commendations upon the uniform action of these products. And so, with every other class of goods, it is the standard or standardized product that will give most satisfaction to your customer and to yourself. The extra price paid for these goods might very justly be charged to the advertising account. 'The best,' is what the physician and the people want from a drug store. Let them get cheap and unreliable stuff elsewhere. The druggist should not fail to take advantage of the opportunity to advertise himself and in the very best and most lasting manner, by supplying goods that cannot be criticised, no matter what he may be compelled to pay for them.

"Possessing the personality I have indicated, with a store, equipment and stock such as I have described, imbued with the desire to render fair, honest service, do you think you would have any trouble in telling those who might be led to deal with you the advantages of giving you their patronage? Advertising as generally understood, in my opinion, consists of frank, open statements, consists in telling the truth regarding yourself, the service you have to render and the goods you have to sell. In every instance, I believe there should be the stamp of individuality upon the advertisement; it should be characteristic of the man and of his particular business. It is worse than useless to use other people's methods or another's combination of words, because they do not fit your case. Some one who knows, really knows, what is to be advertised, should frame the advertisement. It may be that the text, the wording, should be supervised, yet I believe that a man is not sufficiently well prepared to enter the drug business, in this age, if he is not able, himself, to write profitable advertisements. Should it happen that he does not consider himself personally able to attend to this part of the business, I feel safe in advising him to give to it enough time, study and money to become sufficiently accomplished in this line, to meet his own requirements.

"I would especially warn against the use of those familiar drug store cards, which invariably begin with 'Pure Drugs and Chemicals,' and, as invariably, contain the assurance that 'Prescriptions are accurately compounded.' As a slight

variation, it may read: 'Prescriptions compounded with accuracy and dispatch,' when we all know they should be prepared with mortars and pestles, spatulas and elbow grease. Advertisements, to be helpful, must have some specific purpose and should, if possible, make an impression regarding a specific fact in connection with the business advertised. It is a good principle to begin with a general phrase or heading that will interest almost everyone and then gradually draw the attention to yourself and your business or to some one thing that you wish to present. The funnel illustrates what I mean, you begin with a large opening and gradually draw the attention of the possible customer down to the apex or neck of the funnel and then through it into your store with a definite object in view. For example: 'Some day—Yes! Some day, you may be ill and need a druggist.' 'Decide now, where you will go when you have a prescription to be filled.'

"As Mr. Lyons has aptly stated, 'The average neighborhood druggist can not advertise in newspapers profitably because he pays for the total circulation of the paper, and can hardly cash in on more than 5 percent of the circulation.' He also says: 'Many druggists have tried to build up a telephone business, but this has often proved disastrous, because the cost of delivery takes the profit from the sale.' If the drug store is not centrally located, it is unprofitable for it to go after business outside of its own neighborhood, because of the extra cost of delivery. If newspaper advertisements are used, preferred space ought to be selected. It is much more profitable to use a small amount of expensive space than it is to buy a section in a position that will attract no attention. Advertisements, in daily papers, should, in my opinion, be changed each day, and I think in weekly county papers they should be changed with each issue of the paper. Not much should be said; only pointed facts should be brought out.

"The practice of sending out cheap circulars has a tendency to cheapen the store in the estimation of those seeing them lying around. It is much better to get up a small number of expensive circulars and see that they are directly delivered to the possible customer. I am clearly of the opinion that, no matter what the location of the drug store or the character of the customers may be, there must be a certain amount of dignity and tone about its advertisements. All that I have said about appropriateness and colors should be applied to the advertising matter issued by pharmacists. Especially should the construction be grammatically correct and refinement in expression should be, consistently, a characteristic. Catchy phrases are desirable, of course, but these should not be used at the expense of good English or of reasonable dignity. It is a very serious question whether profuse advertising of the drug business to the laity pays or does not pay. I believe that the advertising of some side-line at a time, or the advertising of a special feature, by proper circulars, could be made to pay.

"I have no doubt but that the plan I have used of advertising continually and persistently to physicians is the very best method of building up a real drug business. It is a character of advertising that requires very great care and the possibility of overdoing it or misdoing it should always be kept in mind. There are many things that can be sent physicians which will remind them of the sender; these should, however, frankly appear as advertisements; they should not imply an obligation, but they should be of a character which will insure their use and

preservation. Cheap prescription blanks, unattractive blotters or useless publications are really harmful. One must know the needs of a physician and must try to supply these needs in a manner that will be acceptable to the receiver."

In concluding and summarizing, the speaker said:

"I believe to advertise successfully, one must have something to tell, must have something good to tell, and must really believe he has something to tell that will benefit those he desires to serve. If then, he will tell his story earnestly, enthusiastically, and, above all things, truthfully, he will be able to do advertising that will bring profit to himself and give satisfaction to those upon whom it has had effect."

THE NEED OF QUALIFIED PHARMACEUTICAL SERVICE FOR THE AMERICAN SOLDIERS IN THE UNITED STATES ARMY.*

BY FRANK CAIN, M.D.

As the great war continues we grow increasingly conscious of the enormous task before us in providing for the immediate health and safety of the American soldier, which is equivalent to the ultimate salvation of all of us. For the army and the navy are the bulwarks that stand between us and the horrors of servitude. Democracy must trust everything to her sturdy sons hastening to the field of battle. But if this is so we must do all that lies in our power to keep them sturdy and capable of defending us. Already in a thousand directions keen minds are at work with this end in view and constructive legislation is creating the conditions for its realization.

The movement in favor of Pharmaceutical Army Corps is one phase in this general tendency toward constructive national legislation and achievement. To the expert or careful student of such matters, the value and meaning of qualified pharmaceutical service in winning the war is obvious. To the general public, consisting of laymen, even to the educated laymen, this value is not so clear. There are even members of Congress who oppose the Edmonds bill (which authorizes the creation of such corps) on the plea that they are unnecessary; that medicine in handy tablet form can be dealt out by any one. But their standpoint is still that of the laymen and consists largely of mental snapshots taken at the corner drug store or the village apothecary's.

Their knowledge of the pharmacist and his work is frequently merely impressionistic, and uncritical or rather superficially critical, and it may even be drawn from an acquaintance with the pharmacist's employees; the boy at the soda fountain, for instance. It is always unsafe, however, and likewise unjust to judge the finished product by the raw material alone—to estimate the trained pharmacist by the potential druggist. The public is also liable to misinterpret the motive of the pharmacist, in seeking recognition in the Army, believing this to be selfish personal interest, an error which we trust we may be able to dispel.

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* Read by the author at the Lloyd Library, Cincinnati, Ohio, June 18, 1918, before official representatives of the Cincinnati Branch of the American Pharmaceutical Association, Ohio State Medical Association, Ohio Branch of the National Pharmaceutical Service Association, Ohio Valley Druggists' Association, Ohio State Pharmaceutical Association, representative citizens and the Drug Clerks' Association.

All this being admitted, we must therefore conduct an educational campaign, nation-wide in its extent in order to convince the public that Pharmaceutical Army Corps are necessary. And we are certain that once the public is shown the facts, it will demand what it has hitherto viewed with indifference or even been unaware of. For the American public, as a thousand testimonials from press, pulpit and every source of popular expression prove, is absolutely sure that there is nothing too good for the boys in khaki "over there," whether it be books to read, food to eat, or medical care for the sick and wounded.

The public then wishes to know why Pharmaceutical Army Corps are desirable. Taking up the question first from the standpoint of abstract justice to the individual pharmacist, we find that he has spent many years in preparing for his profession. Such a man will be efficient, only if placed at his own work. The spirit of efficiency which is coming to guide us in all our activities, dictates that each man be in his proper place, and the general rule covers the particular instance. It should apply to the pharmacist as to the engineer, physician and all others. Again, the pharmacist or student of pharmacy has in addition to his years of apprenticeship spent other years in institutions bestowing a scientific training in his profession. He is, or ought to be, somewhat of an expert in many branches of science. He must be a chemist, physicist, botanist, and an expert in crude and refined drugs, as well as poisons. Is all this training and ability to be thrown away? Would it not be better employed in actively serving the Government?

The ideal of Democracy, in opposition to Autocracy, with its crushing of the individual, is personality in the members that compose it—the ideal of the fullest realization of the powers and capacities of the individual in their appropriate objects. And in his ideal is the promise not only of justice to the individual but of the maximum of social efficiency.

Social efficiency—this after all is the keynote of our desire for the recognition of pharmacy, and the institution of pharmaceutical army corps. Social efficiency to-day means national efficiency, the first prerequisite to the success of the United States in this war, and the safety of the world which hangs in the balance. We could waive all questions of individual justice for pharmacists. The pharmacist has but one desire and that is to serve America. He is willing to serve in any capacity if need be. Letters from pharmacists now serving in the ranks of the United States Army are eloquent testimonies to this fact. All unite in their spirit of eagerness to serve the country with mop and broom, it may be, or with rifle and bayonet at the fighting lines, to the end that Kaiserism may be defeated forever. Nevertheless, they express regret at not being able to contribute their particular skill and training in the interests of their comrades' welfare. What wonder if amid so many expressions of pure altruism, a note of personal chagrin creeps in at times, because in the majority of cases the pharmacist is assigned to some duty which has no relation whatever to his profession. While at the same time the dispensary at the very Post at which he is stationed, may be under the supervision of one who is not a pharmacist.

Thus the pharmacist in the Army feels that it is good to serve Uncle Sam in any case, but that it would be much better to be able to serve efficiently. This means in the first place to serve in his chosen line where he knows that he can "deliver the goods" and that no one else can satisfactorily fill his place and, in

the second place, it means actual service as a pharmacist at the front with the fighting men. This would also be justice to all, for after all, Plato's conception of justice as each class performing its special task, each man minding his own business, in a word, performance by those best adapted to perform is as true to-day as it ever was.

Thus from the point of view both of individual and social justice, the pharmacist deserves recognition as a distinct and valuable unit in our fighting forces. We have dwelt briefly on the greater efficiency thus attainable, but it may be well to develop the point.

Success in war is no longer only a matter of courage in the soldiery or strategy and skill on the part of the commanders, or the possession of deadly instruments of warfare, or of all these things combined. Wars are no longer mere contests between the public armed forces of belligerent peoples, while the masses of people on either side look on, more or less passively, or are indifferent, like the philosopher Hegel writing his learned treatises while the guns at the battle of Jena thundered in the distance. To-day entire nations are mobilized against one another. All of the material and spiritual resources of a country must be pooled and organized to successfully resist the foe. It is a contest of efficiency and of morale which is in part at least the result of the consciousness of efficiency.

Now efficiency depends upon division of labor. Historically, increasing division of labor has accompanied progress in civilization and civilization is a function of efficiency in living. The primitive horde in which every man was a "Jack of all Trades" and provided for all his own wants, gave way to the tribe where the arrow-maker, the chipper of flints, the manufacturer of nets, and the medicine man began to specialize on certain phases of the general activity, and so foreshadow a future period of universal mutual dependency, and reciprocal service. All through the classic and medieval periods, division of labor increased and reached its maximum in our modern industrial age of machinery. To-day there are innumerable vocations and professions, each boasting its experts and within each is a sub-division or redivision of labor, so that in such a profession as medicine, for example, there is a multitude of specialists of every kind. This minute division of labor is what makes modern medicine so efficient in contrast with that of the past. Each specialist is enabled to assimilate and apply all there is to be learned in his particular branch.

What is true of the modern world, under the normal conditions of peace, is no less true under the abnormal conditions of war. In fact it is even more essential that each kind of service required should be performed in the speediest and best way—in short, by the man equipped for the specific task—the expert.

If one of these experts, say the physician or surgeon, be compelled to devote his attention to a variety of tasks instead of that for which he is peculiarly fitted, he is handicapped at the start. His best efforts are thwarted because he must scatter his shot. Yet this is just what happens if the physician or surgeon is forced to supervise, or attend to the pharmacist's work in addition to his own, as is the case at present in the United States Army.

Disease has been the deciding factor in many of the great campaigns in history, whether those of a Pharaoh in Egypt, a Hannibal or a Napoleon. It will be recalled that the army of the Assyrian when he "came down like a wolf on the

fold" was stricken by the "Angel of God" and decimated; in short, his army was so afflicted by disease that he was obliged to raise the siege for want of fighting men and succeeding centuries have witnessed similar disasters.

In modern times cases are recorded where regiments were exterminated before they could reach the seat of war, notably in the Crimean war, when in a single six months' campaign, of 50,000 men lost, but 2,000 died of bullets. Again, in the Madagascar campaign of the French in 1894, 7000 out of 14,000 men engaged, died of disease while but 29 men were killed in battle. In the American Civil War a little less than the proportion of 4 to 1 died from disease as against those slain on the battlefield. In the Spanish-American War the proportion was about 11 to 1, for the entire war, and 14 to 1 during the first 100 days. In the Franco-Prussian war, one man died from disease for every two slain in action, while in the Russo-Japanese war the oriental armies lost but one man from disease to every four killed on the firing line, the best record yet made and one attracting universal attention, which is proof of the great value of a scientifically organized medical department, which includes Pharmaceutical Corps.

To-day Germany claims that 87 percent of her wounded are returned to service, a fact which partly explains why Germany still has a huge army despite tremendous losses. The Germans have been fortunate enough to retain their own wounded as a rule, and these were generally restored to active service. The Allies must achieve the same results, in the treatment of sick and wounded, or our potential numerical superiority will not avail us in the struggle. Fortunately, however, our own record compares very favorably with that of the enemy. Surgeon General Gorgas recently announced that 80 percent of the American wounded will be restored and returned to service again, while only 10 percent will be permanently disabled. This shows that remarkable work has already been accomplished. But the fact that the whole burden of this great work is thrown upon the physicans and surgeons, results in a constantly increasing call for more doctors in the Army. A noted surgeon, Dr. McLain, speaking recently before the American Surgical Association, in Cincinnati, was quoted as saying that "every available doctor in the country might be called to military service before the present conflict ends." But it is clear that our success in the war would not be furthered by sending every physician abroad. Who would then care for the health of the workers at home? "We ought to have enough physicians to care for the Army's sick and wounded and for the really vital needs of the army and civilians at home at the same time.

It is plain that the doctors of the Army need and would welcome assistance, and what more welcome assistance could be afforded than that of an organized corps of competent pharmacists who, by relieving the doctor of numerous labors of preparation, analysis and supervision, would restore the normal division of labor to which he is accustomed and permit his concentrated attention to his specific task?

This arrangement, moreover, would have the further advantage of preserving and augmenting the pharmacist's professional skill, so that he would be a more efficient member of society upon his return to civil life after the war. The conservation of professional skill is a part of the general conservation of the country's resources. At present the reverse is true. The pharmacist who goes

to the trenches may have no opportunity for several years to practice pharmacy, or keep up with its progress. As a consequence, he is likely to come out of the war "a back number." The creation of new skill is always more difficult than the maintenance of what we already possess.

The arguments thus far advanced seem to us amply sufficient to convince any one that the pharmacist has a definite and necessary place in the U. S. Army. For the sake of completeness, however, we touch upon a few other points generally referred to but which bear repetition. In the first place, it cannot be too much emphasized, that laws in every state of the Union require legally accredited pharmacists to dispense drugs. Laymen are not permitted to do so lest the citizen of the commonwealth suffer thereby.

Shall those on whom the hope of the world depends—the soldiers of the United States Army have inferior service in this regard? There can be but one reply. Not inferior, but even superior, service if possible. The men and women at home would demand it if they conceived the problem clearly. The soldiers themselves have no time to ask it or even think about it. Their one thought is to give efficient service as soldiers. The motive of patriotism effaces self. But we who are at home can clearly see their needs, and it is our social, our patriotic, our Christian duty to provide for them.

In the second place, the dispensing of the numerous poisons specified in the official drug table of the U. S. Army—there are some 200 deadly poisons among them—must be in skilled hands. In a war with an unscrupulous enemy resorting to poison gases, and the poisoning of water supplies and food where possible, adequate knowledge of the treatment of poison by antidote and antagonists should be possessed by those dispensing drugs as well as army physicians.

Finally, the example of our European Allies, as well as that of our enemies, should impel us to the establishment of pharmaceutical army corps. Germany has a splendid organization of the kind, with military pharmacists of a number of orders of rank. We must fight fire with fire, like the pioneers of the western prairies, and match Germany at her own game, here as elsewhere. England and the United States who lag behind in this respect, must establish such corps to coöperate properly with their great French ally who considers their Pharmaceutical Corps indispensable.

If the reader finds himself wearied by what he may call truisms, or by restatements of things he already knows or fancies he knows, let him remember that all good things bear repetition. It is only by repetition that we learn that most essential of all essentials in education, the letters of the alphabet. And the alphabet of the nation's needs, in which pharmaceutical army corps is one of the letters, like any other alphabet, must be thoroughly learned before we can spell out a speedy victory.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 19.

PHILADELPHIA, July 17, 1918.

To the Members of the Council:

Motions No. 27 (*Investment in Liberty Bonds for A. Ph. A. Research Fund*) and *No. 28* (*Election of Members; applications No. 205 to 247, inclusive*) have each received a majority of affirmative votes.

Motion No. 29. (*Election of Members*). You are requested to vote on the following applications for membership:

No. 248. William Arthur Schoen, Hill City, Minn., rec. by Wm. B. Day and J. W. England.

No. 249. Anthony L. Ajello, 109 Carroll Street, Brooklyn, N. Y., rec. by H. V. Arny and Hugo H. Schaefer.

No. 250. Cornelius M. Judd, 615 So. Cutler Street, Rochester, Minn., rec. by Wm. B. Day and J. W. England.

No. 251. William Peter Norris, 14 So. Sacramento Blvd., Chicago, Ill. Prize awarded by Central States College of Pharmacy for 1919. Rec. by Geo. L. Second and H. M. Whelpley.

No. 252. Montaigu M. Sterling, 90 Beekman Street, New York N. Y., rec. by Rudolph Wirth and Robert C. Purcell.

No. 253. Charles E. Cason, 3617 Word Street, Dallas, Texas., rec. by L. B. Mitchell and Wm. B. Day.

No. 254. James R. Spivay, 103 S. Main Street, Bluffton, Ind., rec. by F. W. Meissner and Wm. B. Day.

No. 255. Dante A. Giusti, 803 Wylie Ave., Pittsburg, Pa., rec. by J. A. Koch and F. J. Blumenschein.

No. 256. Michael Francis McNerney, Ridge Ave., Sharpsville, Pa. Awarded the Darbaker Prize for highest grade in Pharmacognosy in Pittsburg College of Pharmacy. Rec. by J. A. Koch and L. K. Darbaker.

No. 257. John H. Robertson, Duncansville, Pa. Awarded the Judd Prize for highest grade in Materia Medica in Pittsburg College of Pharmacy. Rec. by J. A. Koch and A. F. Judd.

No. 258. John Edwin Reed, 700 Main St., Gallitzin, Pa. Awarded the Prize for highest grade in Chemistry in Pittsburg College of Pharmacy. Rec. by J. A. Koch and F. J. Blumenschein.

No. 259. Elwood Milton Keagy, 605 S. Pittsburg St., Connellsville, Pa. Awarded the Saalbach Prize for best set of pharmaceutical products in Pittsburg College of Pharmacy. Rec. by Louis Saalbach and J. A. Koch.

No. 260. Philip Hoffman, California, Pa. Awarded the Saalbach Prize for highest grade in Pharmacy in Pittsburg College of Pharmacy. Rec. by Louis Saalbach and J. A. Koch.

No. 261. Premananda Das, 38 Raja Nobo Kissen St., Calcutta, India., rec. by C. C. Glover and A. F. Schlichting.

No. 262. Robert C. White, 23 North 7th St., Phila., Pa., rec. by Robert P. Fischelis and J. C. Peacock.

No. 263. Clare O. Ewing, Bureau of Chemistry, Washington, D. C., rec. by W. W. Stockberger and E. C. Merrill.

No. 264. Albert Albrecht, Port-Au-Prince, Haiti, c/o U. S. Marine Expeditionary Forces, c/o Postmaster, New York, N. Y., rec. by J. W. England and E. G. Eberle.

No. 265. Myrtle M. Heden, Conrad, Mont. Awarded prize in School of Pharmacy of the University of Montana for Scholarship and Proficiency in Pharmacognosy. Rec. by Chas. E. Mollet and Alex. F. Peterson.

No. 266. John D. Carmichael, Missoula, Mont. Awarded prize in School of Pharmacy of University of Montana for Scholarship and Proficiency in Manufacturing Pharmacy. Rec. by Alex. F. Peterson and Chas. E. Mollet.

No. 267. Sara Eskin, 1517 N. 8th St., Phila., Pa., rec. by W. L. Cliffe and E. G. Eberle.

No. 268. Anthony McGill, 317 Queen St., Ottawa, Canada, rec. by Henry Watters and E. G. Eberle.

J. W. ENGLAND,

415 N. 33RD STREET. *Secretary.*

A. PH. A. COUNCIL LETTER NO. 20.

PHILADELPHIA, July 22, 1918.

To the Members of the Council:

Motion No. 30 (Election of Members).—You are requested to vote on the following applications for membership:

No. 269. Willis Anthony Clark, Jr., Remlig, Texas, rec. by E. G. Eberle and C. A. Duncan.

No. 270. G. E. Thompson, Chatham, Va., rec. by W. F. Rudd and Wm. B. Day.

No. 271. John G. Ricketts, 323 No. Washington St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 272. Evan R. Owens, 345 E. Market St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 273. W. D. White, 12 Laning Bldg., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 274. J. R. Bennett, 169 Park Ave., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 275. H. S. Hufford, 109 Carey Ave., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 276. Leroy Berg, 122 Academy St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 277. Ellsworth Lynn, 312 Wyoming Ave., Kingston, Pa., rec. by Louis Frank and J. W. England.

No. 278. W. B. Davis, 535 Main Street, Edwardsville, Pa., rec. by Louis Frank and J. W. England.

No. 279. J. R. Hatten, 587 Main Street, Edwardsville Pa., rec. by Louis Frank and J. W. England.

No. 280. A. C. Haight, 124 Main Ave., Luzerne, Pa., rec. by Louis Frank and J. W. England.

No. 281. A. H. Edwards, 291 Hughes St., Maltby, Pa., rec. by Louis Frank and J. W. England.

No. 282. H. T. Gregory, 340 Wyoming Ave., Wyoming, Pa., rec. by Louis Frank and J. W. England.

No. 283. Jos. D. Morgan, 236 Horton Street, Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 284. C. J. Gallagher, 323 Scott St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 285. Marvin Shales, 382 No. Washington St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 286. Earl C. Henwood, 41 Gates St., Westmoor, Pa., rec. by Louis Frank and J. W. England.

No. 287. P. W. Banker, 203 Pierce St., Kingston, Pa., rec. by Louis Frank and J. W. England.

No. 288. George Norton, Dallas, Pa., R. D. No. 1, rec. by Louis Frank and J. W. England.

No. 289. Norris Greenstein, 201 E. Market St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 290. Henry Bossert, 281 E. Market St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 291. W. E. Evans, 1205 Wyoming Ave., Forty-Fort, Pa., rec. by Louis Frank and J. W. England.

No 292. W. J. Cott, 62 W. Main St., Miners Mills, Pa., rec. by Louis Frank and J. W. England.

No. 293. W. J. Walters, 108 Dana St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 294. George W. Brown, 261 College Ave., Kingston, Pa., rec. by Louis Frank and J. W. England.

No. 295. W. V. Green, 125 Academy St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 296. H. H. Swainbank, 82 South Main St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

No. 297. W. C. Hogan, Walton Cloud, Atkins Ark., rec. by Frank Schachleiter and Wm. B. Day.

No. 298. Peter Honorof, 36 W. 11th Ave., Gary, Ind., rec. by Wm. B. Day and F. W. Meissner, Jr.

The following communication has been received:

"We, the undersigned, residents of Wilkes-Barre, Pa., and vicinity, hereby petition the Council of the American Pharmaceutical Association for permission to establish the Wilkes-Barre Branch of the American Pharmaceutical Association in accordance with the conditions specified in Chapter XII of the By-Laws of the Association (Year Book, 1916, XXXV):"

Louis Frank, 39 E. Market St., Wilkes-Barre, Pa.

John G. Ricketts, 323 No. Washington St., Wilkes-Barre, Pa.
Evan R. Owens, 345 E. Market St., Wilkes-Barre, Pa.
W. D. White, 12 Landing Bldg., Wilkes-Barre, Pa.
J. R. Bennett, 169 Park Ave., Wilkes-Barre, Pa.
H. S. Hufford, 109 Carey Ave., Wilkes-Barre, Pa.
Leroy Berg, 122 Academy St., Wilkes-Barre, Pa.
Ellsworth Lynn, 312 Wyoming Ave., Kingston, Pa.
W. B. Davis, 535 Main St., Edwardsville, Pa.
J. R. Hatten, 587 Main St., Edwardsville, Pa.
A. C. Haight, 124 Main Ave., Luzerne, Pa.
A. H. Edwards, 291 Hughes St., Maltby, Pa.
H. T. Gregory, 340 Wyoming Ave., Wyoming, Pa.
Jos. D. Morgan, 236 Horton St., Wilkes-Barre, Pa.
C. J. Gallagher, 328 Scott St., Wilkes-Barre, Pa.
Marvin Shales, 382 No. Washington St., Wilkes-Barre, Pa.
Earl C. Henwood, 41 Gates St., Westmoor, Pa.
P. W. Banker, 203 Pierce St., Kingston, Pa.
Geo. Norton, R. D. No. 1, Dallas, Pa.
Morris Greenstein, 201 E. Market St., Wilkes-Barre, Pa.
Henry Bossert, 281 E. Market St., Wilkes-Barre, Pa.
W. E. Evans, 1205 Wyoming Ave., Forty-Fort, Pa.
W. J. Cott, 62 West Main St., Miners Mills, Pa.
W. J. Walters, 108 Dana St., Wilkes-Barre, Pa.
George W. Brown, 261 College Ave., Kingston, Pa.
W. V. Green, 125 Academy St., Wilkes-Barre, Pa.
H. H. Swainbank, 82 South Main Street, Wilkes-Barre, Pa.

All of the above petitioners (except Louis Frank) are not members of the Association, although they have applied for membership (Motion No. 30). Do you favor granting the above petition contingent upon the election of the non-member applicants to membership in the Association? This will be known as *Motion No. 31* (*Granting of Petition to Establish Wilkes-Barre Branch, A. Ph. A.*).

J. W. ENGLAND,
415 N. 33RD STREEET. *Secretary.*

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON DRUG MARKET.*

The most impressive fact noted while studying the large amount of material presented by the various members of your Committee on Drug Market, is the excellent condition of drugs and chemicals in general. The committee is very fortunate in having access to the analytical files of laboratories that examine a wide variety of goods, so that on account of this privilege, it is able to give a comprehensive report of the conditions prevailing in the drug and chemical world. It is very gratifying to note the maintenance of the high standard of quality noticed in recent years and that goods of standard quality have been consistently offered for some years. Various articles from time to time fall off in quality but after a period of back-sliding they generally return to a normal condition.

The cases of wilful adulteration were few and as in recent years the most trouble has been caused by the ignorant and by those who use careless methods of manufacture. However, it is usually not difficult to obtain goods of standard quality but constant watchfulness is essential to guard against imposition by the unscrupulous and careless, who endeavor to dispose of adulterated or inferior goods. Those who follow analytical work appreciate the excellency of the U. S. P. standards and tests, as they are fair and render uniformity of results more probable thereby avoiding considerable contention regarding methods. These tests and standards reinforced by the rulings of Federal and State governments and the efforts of conscientious manufacturers and retail dealers are responsible for the present high standards of excellence. It is found also that the quality of chemicals formerly produced abroad, but now manufactured in this country, is excellent and it is gratifying to note the success of American chemists in their accomplishment of wresting from Germany the control of many lines of chemical industry.

* Presented at 1918 meeting Pennsylvania Pharmaceutical Association.

As in former years, we found a number of substances which were only slightly inferior and were considered of acceptable quality, although not strictly equal to the standards. They often were low in strength but usually contained traces of harmless impurities. The number of rejected or decidedly inferior shipments and broker's samples was not excessive considering the fact that several thousand samples were examined by the workers of the various laboratories contributing to our report. There were about 90 in all, divided as follows: Chemicals, 42; drugs, 38; oils and fats, 8. Most of the drugs contained excess of stems, stones and earthy matter but usually the foreign matter could be removed and the shipment put in an acceptable condition.

As reported in the following pages, there were 8 substances subjected to adulterations, substitution or gross carelessness, for instance: Cottonseed oil was substituted for olive oil and tap water for lime water. A lot of belladonna root was adulterated with scopola, and sugar with table salt. A shipment of citron essence was found to be oil of lemon, and a shipment of lithium benzoate was found to be barium hydrate. Several lots of storax were of very poor quality and had probably been deprived of their cinnamic acid and esters. One lot of rennin was only half strength and a lot of wild belladonna contained only a trace of alkaloids. Two shipments of diastase were only one-half strength and contained 50 percent of water-insoluble matter. Another shipment was three-fourths strength and contained 30 percent of water-insoluble matter.

The detection of these cases of gross inferiority adulteration, and substitution emphasizes the necessity of close analytical control and examination, as it protects health, avoids waste of effort and material, insures uniformity of results and increases efficiency. This is particularly true at this time of war when all waste of any kind must be avoided in order to aid our country and its allies in their fight to maintain liberty at home and render it possible for oppressed peoples of other lands to obtain it in full measure.

The substances commented upon in the following pages have all been examined by practical and experienced workers during the period from June 1, 1917 to June 1, 1918 and have been taken from the files of the laboratories of H. K. Mulford & Co., Prof. Charles H. LaWall and Smith, Kline and French Co., who generously offer them for the benefit of the Pennsylvania Pharmaceutical Association in particular, and the whole pharmaceutical profession in general.

ACETIC ETHER: The only lot examined yielded a trifle more residue than is permitted by the U. S. P. Reported by J. G. ROBERTS.

ACID, ACETIC: An instance of lack of uniformity in shipments was found in the case of a three-barrel lot of 80% acetic acid. The contents of one barrel was decidedly reddish, another had a slight yellow color, while the remaining one had a normal water-white appearance. Reported by J. G. ROBERTS.

ACID, BENZOIC: A slight excess of chlorine was discovered in each of two lots which were otherwise of normal quality. Reported by J. G. ROBERTS.

ACID, ACETYL SALICYLIC: One lot was rejected because of excessive free salicylic acid and perfumed odor. Reported by G. E'WE.

ACID, HYDROCHLORIC C. P.: One lot contained an excess of iron and free chlorine. Reported by G. E'WE.

ACID, SALICYLIC: During the past year this substance has not been quite as good as usual. Of the four lots examined only one was entirely satisfactory. One of the other three had an undesirable yellow color, a trace of phenol and was 0.44% low in strength; another was 0.55% low in strength and the remaining one was satisfactory except that it contained a trace of phenol.

ADEPS LANAE: Occasional lots have offensive odor. Reported by G. E'WE.

ADEPS LANAE (HYDROUS): One lot complied with the requirements of the U. S. P. and one lot was of very poor quality. It contained chlorides and excessive amounts of water, free acid and ash. It had a dark color, an alkaline ash and too high an iodine number. In fact it hardly complied with one of the U. S. P. requirements and was a very inferior product. Reported by J. G. ROBERTS.

ADEPS LANAE (ANHYDROUS): One lot was of U. S. P. quality except that it had a low iodine value and contained slightly excessive amounts of ash and free acid. Another lot was entirely U. S. P., except its iodine value, which was only slightly below the U. S. P. minimum standard. Reported by J. G. ROBERTS.

ALLSPICE: Three samples examined were all of normal quality.
Reported by C. H. LaWall.

ALUM (POTASH): The rejection of one sample was recommended on account of its dirty color and the presence of pieces of wood and other foreign matter.
Reported by J. G. Roberts.

ARGOLS: A sample of white argols was found to contain about 84% of tartrates calculated as potassium bitartrate and a sample of red argols about 14%.
Reported by J. G. Roberts.

ASAFETIDA: One lot was found to contain rosin. Reported by J. G. Roberts.

BELLADONNA LEAVES: Every shipment was of U. S. P. quality and contained 0.3% to 0.54% alkaloids. Reported by J. G. Roberts.

BELLADONNA PLANT—WILD: A lot was examined which contained only traces of alkaloids. Reported by C. Green.

BELLADONNA ROOT: One lot contained 11.64% of scopola root. This lot did not conform to the U. S. P. requirement of not more than 10% of Belladonna stem bases or other foreign matter. Reported by G. E'we.

BELLADONNA STEMS: A sample was examined for academic interest only. It assayed 0.1443% mydriatic alkaloids. Reported by C. Green.

BENZOIN, GUM: One lot contained only 59.5% alcohol-soluble matter whereas the U. S. P. requires 75%. The foreign matter consisted chiefly of wood.
Reported by N. Suto.

BISMUTH SUBGALLATE: One lot contained an excess of sulphate.
Reported by J. Rahn.

BISMUTH TRIBROMOPHENOLATE: One lot was grayish yellow, assayed 62.1% Bi_2O_3 and possessed a strong odor of tri-brom-phenol. This was not satisfactory and was rejected. Reported by G. E'we.

BROOM TOPS: One lot contained 8% of stems. Reported by G. E'we.

CALCIUM CARBONATE—PRECIPITATED: Two of the five lots examined were not of U. S. P. quality. One was 4.3% low in strength and the other contained about 25 times more water-soluble material than is permitted by the U. S. P. Reported by J. G. Roberts.

CALCIUM GLYCEROPHOSPHATE: One lot contained slight excess of chlorides and of sulphates. Reported by J. Rahn.

CALCIUM OXIDE (MEDICINAL): One lot was rejected because it was air-slaked.
Reported by G. E'we.

CAPSICUM: Fifteen samples examined were all of normal quality.
Reported by C. H. LaWall.

CASCARILLA BARK: One lot offered was very poor. It contained excessive dirt and in addition some pebbles, shells, berries and nails. Another lot was practically devoid of odor.
Reported by G. E'we.

CELERY SEED: Two lots yielded, respectively, 8.61% and 9.43% of ash which amounts are in excess of the U. S. P. limit of 8%, but within the U. S. Dept. of Agriculture standard of not more than 10%. Reported by J. G. Roberts.

CELERY SEED: Five samples examined were all of good quality.
Reported by C. H. LaWall.

CHARCOAL, ANIMAL (PURIFIED): One lot contained 6.9% ash. The U. S. P. VIII allowed only 4% ash. Reported by F. Keenan.

CHLOROFORM: A trace of free chlorine was found in one lot. Two other lots had specific gravities a little higher than the U. S. P. standard which fact was probably due to the absence of a requisite amount of alcohol. Reported by J. G. Roberts.

CINCHONA, YELLOW (BRAZILIAN): Three lots assayed 1.73, 2.14 and 3.62% total alkaloids, respectively. Reported by G. E'we.

CINNAMON: All of the seven samples examined were satisfactory.
Reported by C. H. LaWall.

"CITRON, ESS:" A sample, so labeled, was Oil of Lemon of U. S. P. quality.
Reported by S. Dubell.

CLOVES: The six samples examined were of standard quality.
Reported by C. H. LaWall.

COCOA: Twenty samples, all O. K. Two had the unusually low fat content of 12% but were normal in every other respect. Reported by C. H. LaWall.

CODEINE SULPHATE: Two lots were a little yellow in color.
Reported by J. G. Roberts.

COLCHICINE: Two lots contained 12.35 and 13.4% respectively, of volatile matter at 100° C. The volatile matter consisted largely of chloroform. Colchicine should not lose more than 5% of its weight at 100° C. Reported by G. E'we.

COPPER SULPHATE: The examination of a broker's sample showed the presence of a large excess of foreign metals. It appeared to be a good technical grade.
Reported by J. G. Roberts.

CORIANDER: Out of 8 samples examined, 3 were found to contain foreign starch (leguminous) from weed seeds not removed by cleaning. Reported by C. H. LaWall.

CREOSOTE, BEECHWOOD: One was turbid in U. S. P. glycerin test.
Reported by S. Dubell.

CREOSOTE, CARBONATE: One sample had a specific gravity slightly below the U. S. P. standard but was otherwise of U. S. P. quality. Reported by J. G. Roberts.

DAKIN'S SOLUTION: The examination of sixteen lots showed them to contain in 100 mils, 0.34 Gm. to 0.512 Gm. of chlorine, calculated as sodium hypochlorite. Five of them contained less than 0.45 Gm. which is considered as the minimum standard.

DAMIANA LEAVES: One lot was rejected because it contained a considerable proportion of pebbles. Another lot consisted practically entirely of stems.
Reported by G. E'we.

DIASTASE: This sample was found to show only a little over $^3/_4$ of the U. S. P. starch digesting power. It was not soluble in water, as is required by the U. S. P. standard, but showed over 30% of insoluble matter which under the microscope was seen to be starch granules.
Reported by J. G. Roberts.

DIASTASE: Two samples were examined having about one-half the U. S. P. digestive power and containing about 50% insoluble matter, mainly starch. The samples consisted of powdered malt, in all probability. Reported by C. H. LaWall.

GALEGA: Two lots were rejected because of too much stems.
Reported by B. Hoffstein.

GAMBIR: Some lots continue to come in in a soft mass condition due to excessive moisture whereas the U. S. P. requires Gambir to be dried to the friable stage.
Reported by G. E'we.

GINGER: Six samples were all of good quality. Reported by C. H. LaWall.

GELATIN: Out of 10 samples of powdered gelatin examined, 5 were found to contain excessive amounts of sulphur dioxide and arsenic to the extent of over 2.5 parts to the million, also in excess. Reported by C. H. LaWall.

GLYCERIN: Most of the glycerin examined was of good quality. Two lots had specific gravities a little lower than the standard. One had a decided yellow color and contained more than the permissible amount of carbonizable impurities. Four lots were of U. S. P. quality in every respect. Reported by J. G. Roberts.

HELLEBORE: The only lot examined was found to contain 1.75% alkaloids.
Reported by J. G. Roberts.

HYOSCYAMUS: Not one of the lots examined was of U. S. P. quality. One broker's sample was not the U. S. P. variety. Three other shipments were deficient in alkaloids as they contained only 0.033% to 0.054% whereas the U. S. P. requires the presence of not less than 0.065%. Reported by J. G. Roberts.

IPECAC: Both shipments received were of U. S. P. quality and yielded 2.28% and 1.84%, respectively, of alkaloids. Reported by J. G. Roberts.

IPECAC STEMS: Two lots examined because of academic interest were found to contain 1.71% and 1.89%, respectively, of ether-soluble alkaloids. Reported by C. Green.

IRON, REDUCED: Practically all of the reduced iron examined during the past year contained sulphides in excess of the U. S. P. allowance and some of the lots contained shining particles of iron suggesting the probability that ordinary powdered iron was present.
Reported by N. Suto.

KINO: Two samples yielding the following results were examined:

Sample.	O.	F.
Appearance	Normal	Normal
Moisture	14.45%	14.31%
Ash	2.04%	4.92%
Proportion soluble in alcohol	22.14%	36.33%

Neither of these samples was of U. S. P. quality as they contained more than 12% of moisture and did not yield 45% of alcohol-soluble matter as required by the U. S. P. Sample marked F also yielded 1.92% excess of ash. Reported by J. G. ROBERTS.

KOLA NUT: Two lots contained 1.63% and 1.54%, respectively, of caffeine which are within the N. F. limit of not less than 1.5%. Reported by J. G. ROBERTS.

LEAD ACETATE (POWDERED): This shipment was not of U. S. P. quality as it contained an excess of carbonate and was considerably effloresced. Its strength according to the U. S. P. method was found to be 93.53% whereas the U. S. P. maximum limit is 89.57% of anhydrous lead acetate. Reported by J. G. ROBERTS.

LIQUOR CALCIS: One sample from a drug store giving it away free of charge, was found to be nothing but tap water. Reported by C. H. LAWALL.

LITHIUM BENZOATE: A sample, so labeled, received from a prominent firm consisted of barium hydrate. Reported by G. E'WE.

LYCOPODIUM: An excess of ash was found in one lot which was otherwise of U. S. P. quality. Reported by J. G. ROBERTS.

MACE: Out of 10 samples examined, 4 were slightly above the 30% maximum figure for non-volatile ether extract. Reported by C. H. LAWALL.

MAGNESIUM CARBONATE: An excess of 0.44% and 0.14% of calcium calculated as calcium oxide was found in two lots which complied with all other U. S. P. conditions. Reported by J. G. ROBERTS.

MAGNESIUM CARBONATE: Out of 5 samples examined two contained over 5% of $CaCO_3$ and over 0.25% Fe_2O_3. Reported by C. H. LAWALL.

MANGANESE DIOXIDE, PRECIPITATED, U. S. P.: One lot contained 2.32% insoluble matter. The U. S. P. allows only 0.2%. Reported by G. E'WE.

MARJORAM: Sixteen samples examined, 7 of which were found to contain over 10% of foreign leaf fragments. Reported by C. H. LAWALL.

MERCURY BENZOATE: Two lots did not answer the following N. & N. R. 1918 requirements: "At 20° C. a 10% solution of sodium benzoate dissolves 1% of its weight of mercuric benzoate." A large liberation of benzoic acid occurred during the application of the test.

Mercuric benzoate is commonly prepared for hypodermic use by solution in normal saline solution. Two lots contained between 1 and 2% of matter which was insoluble in normal saline solution. Reported by C. GREEN.

NUTMEG: The six samples tested were all satisfactory. Reported by C. H. LAWALL.

NUX VOMICA: Two lots contained, respectively, 2.34% and 2.22% of alkaloids which are below the U. S. P. standard of not less than 2.5% alkaloids. Reported by J. G. ROBERTS.

OIL, CASTOR: Four samples of good quality gave the following acid numbers: 1.54, 1.61, 1.59 and 1.63. Reported by J. G. ROBERTS.

OIL OF DILL: This oil was obtained by distilling a lot of siftings that were left after cleaning a shipment of dill seed. The oil upon examination gave the following results:

Appearance	Yellow
Sp. gr. at 15° C.	1.01
Optical rotation at 20° C.	+34.9°

As oil of dill is not recognized by the U. S. P. or the N. F. the results obtained in this examination were compared with the standards given in the B. P. It was found, however, that it did not meet the requirements given therein as the specific gravity was higher than the B. P. standard of 0.900 to 0.915 at 15.5° C. and its optical rotation lower than the standard of +70°

to +80° at 20° C. In view of the foregoing facts it was considered that the oil was not of normal quality on account of differing so appreciably from the standards.

Reported by J. G. ROBERTS.

OIL OF LEMON, EXTRA STRONG: Assayed 20.5% citral.

Reported by G. E'WE.

OIL OF LEMON, TERPENELESS: Two lots assayed 28.6% and 26.7% of citral, respectively. Reported by G. E'WE.

OIL, RATTLESNAKE: The following data was obtained with one lot:

Sp. gr. at 25° C.	0.919
Iodine value	102.3
Saponification value	202.1

The sample corresponds closely with the published factors for genuine rattlesnake oil and was considered authentic. Reported by J. G. ROBERTS.

OIL OF SASSAFRAS: Sample was of U. S. P. quality with the exception that it did not comply with the optical rotation standard of +3° to +4°. The U. S. P. VIII permitted the use of sassafras oil with an optical rotation as low as this one as it merely required that the rotation should be not above +4°. In the past six years we have examined eight lots which had the following optical rotation: +2.03°, +3.83°, +2.48°, +1.59°, +2.16°, +2.9°, +2.55° and +3.9°.

Six of these are below +3° and two are above. Reported by J. G. ROBERTS.

OIL OF SWEET ORANGE: One lot was dark in color but fine in odor and answered all U. S. P. requirements. Reported by G. E'WE.

OLIVE OIL: Three out of 8 samples examined consisted of cottonseed oil. None of the adulterated samples came from drug stores. Reported by C. H. LAWALL.

PAPAIN: All the papain tested during the past year was low in proteolytic power. None assaying more than 1 to 4.7. Reported by G. E'WE.

PAPRIKA: Twelve samples were all of good quality. Reported by C. H. LAWALL.

PEANUT BUTTER: As it was suspected that this product contained ground glass, added with malicious intent, it was examined both macroscopically and chemically for mechanical matter. No glass was found, however, with either method. The sample yielded 0.3% of ash insoluble in hot dilute hydrochloric acid and 0.38% of insoluble matter left after oxidation of organic matter with sulphuric acid and potassium sulphate. The presence of glass was probably suspected on account of the presence of coarse salt. Reported by J. G. ROBERTS.

PEPPER, BLACK, GROUND: The twenty-one samples tested all complied with the standards. Reported by C. H. LAWALL.

PEPPER, WHITE, GROUND: Eleven samples examined were all satisfactory. Reported by C. H. LAWALL.

PETROLATUM (LIQUID): The rejection of a three-drum lot was recommended because it contained an excess of carbonizable impurities and had a slight taste of kerosene. Reported by J. G. ROBERTS.

PETROLATUM, LIQUID, U. S. P.: A few samples contained excessive carbonizable impurities. Reported by G. E'WE.

PHYSOSTIGMA: The alkaloidal content of one lot was 0.14% which is a trifle under the U. S. P. standard of 0.15%. Reported by J. G. ROBERTS.

POTASSIUM CARBONATE: One lot was 5% low in strength, contained a trace of earthy impurities and was dirty. It contained practically no sodium when tested quantitatively and a normal amount of arsenic according to the general test of the U. S. P. Reported by J. G. ROBERTS.

POTASSIUM PERMANGANATE: Three lots were rejected because of excessive water-insoluble matter. Reported by G. E'WE.

POTASSIUM NITRATE: Two lots were of U. S. P. quality except that they had a yellowish color. Reported by J. G. ROBERTS.

POTASSIUM PERMANGANATE: All of the shipments examined complied with the standards of the U. S. P. except that they had a decided bronze luster. The U. S. P. requires potassium permanganate to have a dark purple color. Reported by J. G. ROBERTS.

QUININE FORMATE: Melting intervals vary. Three lots had following melting intervals, respectively: 120–122° C., 124–126° C. and 145–150° C.

Reported by G. E'WE.

RENNIN 1–30,000: The rejection of one shipment was recommended because its coagulating power was less than 1/2 of that claimed on the label when tested according to the method of the N. F. Reported by J. G. ROBERTS.

RENNIN: Continues to vary greatly. Seven lots assayed as follows: 1 to 10,500, 1 to 12,500, 1 to 15,625, 1 to 16,666, 1 to 16,666, 1 to 26,000 and 1 to 41,000.

Reported by G. E'WE.

SAFFRON: Seven samples were all of N. F. quality. Reported by C. H. LAWALL.

SAGE: Out of 7 samples examined 4 were found to contain an excess of stems, in two cases the stems amounting to over 50% of the samples. Reported by C. H. LAWALL.

SALOL: Sample was of U. S. P. quality with the exception that it had a yellowish color. This condition seems to have become chronic as considerable of the salol seen on the market is in that condition. Reported by J. G. ROBERTS.

SANGUINARINE NITRATE: Continues to vary greatly. The 4 lots examined assayed 51.4, 53.0, 94.2 and 98.7%, respectively. Reported by F. KEENAN.

SAVORY: Out of 3 samples submitted, one contained an excess of stems (24%).

Reported by C. H. LAWALL.

SCAMMONY, RESIN: One lot contained only 90.6% ether-soluble matter. The U. S. P. requires 95%. Reported by G. E'WE.

SENEGA: One shipment was considered unsatisfactory because it contained 30% of stems instead of 5% as required by the U. S. P. and only 0.22 Gm. of ether-soluble matter from 5 Gm. of drug instead of 0.3 Gm. as required. Reported by J. G. ROBERTS.

SOAP, SOFT: Four lots were practically neutral, inclining toward acidity, whereas the U. S. P. requires soft soap to be faintly alkaline. Reported by G. E'WE.

SODIUM BENZOATE: The U. S. P. sanctions the use of synthetic benzoic acid and requires benzoic acid to be tested for chlorine because chlorine is a possible impurity in synthetic benzoic acid. Synthetic benzoic acid can be and probably is used to manufacture sodium benzoate, yet the U. S. P. evidently by oversight neglects to direct the application of a test for chlorine to sodium benzoate or benzoic acid recovered from it. None of the sodium benzoate tested during the past year contained chlorides. Reported by G. E'WE.

SOLUTION HYDROGEN PEROXIDE: Every lot examined was of U. S. P. quality except that one lot had a slight excess of non-volatile matter and two lots a slight excess of free acid. Reported by J. G. ROBERTS.

SOLUTION MAGNESIUM CITRATE: Two out of 5 samples were found to be low in amount of magnesium citrate present. Reported by C. H. LAWALL.

STORAX, LIQUID: There appears to be no strictly U. S. P. liquid storax on the mar ket Some lots are marked "not U. S. P." . Eight lots had the following characteristics:

Sample.	Alcohol sol.	Alcohol insol.	Ash.	Acid value.	Sapon. val.
1	84.08	0.86	0.45	155	193.5
2	87.0	O. K.	0.35	144	196
3	87.5	O. K.	0.04	155	212
4	90.8	0.18	None	41	167
5	91.1	1.62	0.72	118.7	181
6	O. K.	O. K.	O. K.	171.7	O. K.
7	O. K.	1.6	O. K.	122.3	163
8	91.0	7.37	O. K.	118.5	166.5
U. S. P. req	60	2.5	1%	56–85	170–230

Sample No. 4 was labeled "American" and was clear and light yellow in color instead of turbid and brownish. Reported by G. E'WE.

STRAMONIUM LEAVES: Two lots contained, respectively, 0.39% and 0.3% of alkaloids. Reported by J. G. ROBERTS.

SUGAR (CANE): A grossly adultered lot was found to contain 21% of sodium chloride.

Reported by J. G. ROBERTS.

SUGAR, CORN: All of the solid corn sugar examined during the past year was free from barium, arsenic and heavy metals. Reported by G. E'WE.

SULPHUR (PRECIPITATED): Three of the five lots examined were not as represented. One was found to be washed sulphur and two yielded exceedingly high amounts of ash. One of these was of Japanese origin and yielded 46.4%. The other yielded 45.1% whereas the U. S. P. permits not more than 0.3%. Reported by J. G. ROBERTS.

TERRA ALBA: All of the terra alba examined during the past year consisted of non-setting calcium sulphate. Reported by G. E'WE.

THYME: Three samples, one containing an excess of stems (17%). Reported by C. H. LAWALL.

TINCTURE OF IODINE: The rejection of one lot was recommended because it contained only 6.14 Gm. of iodine in 100 mils instead of not less than 6.5 Gm. nor more than 7.5 Gm. as required by the U. S. P. Reported by J. G. ROBERTS.

VERDIGRIS: The following amounts of copper calculated as copper oxide were found in the samples given below:

	Sample No.	Copper oxide.
Blue Verdigris	1	38.49%
Green Verdigris	2	32.91%
Green Verdigris	3	37.80%

Reported by J. G. ROBERTS.

WILD LETTUCE: One lot was rejected because of excessive proportion of midrib. Reported by B. HOFFSTEIN.

WINTERGREEN LEAVES: One lot was rejected because of excessive proportion of stems. Reported by G. E'WE.

ZINC: This lot was stated to be arsenic free but upon examination was found to be of unsuitable quality as it contained a decided trace of arsenic. It complied with the requirement as given under the ordinary U. S. P. zinc but it was not suitable for U. S. P. reagent zinc as it yielded more than "a scarcely perceptible stain" when tested according to the method given. Reported by J. G. ROBERTS.

ZINC OXIDE: Sample contained an excess of heavy metals which, however, is not an unusual condition as most zinc oxide examined by us has contained excessive amounts. This sample contained 0.16% of lead calculated as lead oxide and compares favorably with the lowest amount found in various samples. During the past three years the samples examined have contained 0.09% to 0.44% of lead calculated as lead oxide. Reported by J. G. ROBERTS.

ZINC OXIDE: Of 8 samples examined but 2 responded to the U. S. P. heavy metal test. Reported by C. H. LAWALL.

ZINC OXIDE: Nine lots contained excessive heavy metals ranging from 0.05 to 0.236% calculated as metallic lead. Reported by G. E'WE.

ZINC PERMANGANATE: One lot was rejected because of the presence of a large proportion of water-insoluble matter. Reported by G. E'WE.

The Following Table Shows the Results of 131 Crude Drug Assays made in the Analytical Laboratory of the H. K. Mulford Company during the Year June 1, 1917–June 1, 1918.

Drug.	No. of samples.	Lowest assay.	Highest assay.	Average.	Standard.	Number. Above.	Number. Below.
Aconite Leaves	3	0.37%	0.51%	0.460%	0.2% ether-sol. alks.	3	0
Aconite Root	3	0.33%	0.49%	0.414%	0.5% ether-sol. alks.	0	3
Belladonna Leaves	8	0.31%	0.79%	0.450%	0.3% alkaloids	8	0
Belladonna Root	8	0.40%	0.710%	0.530%	0.45% alkaloids	6	2
Cantharides, Chinese	3	1.08%	1.90%	1.60%	0.6% cantharidin	3	0
Cinchona, red	6	5.55%	10.0%	7.70%	5% alkaloids	6	0
Cinchona, yellow	3	6.01%	9.38%	7.46%	5% alkaloids	3	0
Coca Leaves	2	0.73%	1.14%	0.93%	0.5% alkaloids	2	0
Colchicum, Corm	1	0.37%	0.37%	0.37%	0.35% colchicine	1	0

Drug.	No. of samples.	Lowest assay.	Highest assay.	Average.	Standard.	Number. Above.	Number. Below.
Colchicum, Seed	4	0.67%	0.75%	0.71%	0.45% colchicine	4	0
Cubeb	1	24.3%	24.3%	24.3%	15% oleoresin	1	0
Ginger, African	2	6.39%	8.11%	7.25%	6% oleoresin	6	0
Gelsemium	4	0.40%	0.62%	0.48%	0.4% alkaloids	4	0
Ginger, Jamaica	6	4.00%	6.85%	4.81%	4% oleoresin	6	0
Guarana	5	3.97%	5.57%	4.43%	4% caffeine	4	1
Hydrastis	2	3.94%	4.47%	4.20%	2.5% alkaloids	2	0
Hyoscyamus	2	0.059%	0.066%	0.062%	0.065% alkaloids	1	1
Ignatia	1	2.88%	2.88%	2.88%	2% alkaloids	1	0
Ipecac	14	1.66%	2.65%	1.95%	1.75% alkaloids	13	1
Jalap	6	5.95%	16.92%	8.89%	7% total resins	3	3
Kola	9	1.36%	2.35%	1.71%	1.5% caffeine	6	3
Kola, Fresh	1	1.176%	1.176%	1.176%	0.65% caffeine	1	0
Lobelia	3	0.50%	1.14%	0.745%	0.5% alkaloids	3	0
Nux Vomica	5	2.35%	2.63%	2.53%	2.5% alkaloids	4	1
Opium Gum	4	9.58%	10.48%	9.90%	9.5% anhydrous morphine	4	0
Opium, Powdered	9	9.98%	10.50%	10.16%	10% anhydrous morphine	8	1
Pilocarpus	1	0.67%	0.67%	0.67%	0.6% alkaloids	1	0
Podophyllum	7	3.10%	6.70%	4.31%	3% resin	7	0
Sanguinaria	2	3.37%	3.95%	3.66%	2.5% alkaloids	2	0
Stramonium Leaves	4	0.12%	0.30%	0.23%	0.25% alkaloids	3	1
Stramonium Seed	2	0.238%	0.278%	0.258%	0.25% alkaloids	1	1
Totals	131					113	18

COMPARISON WITH REPORTS PREVIOUSLY SUBMITTED.

Year.	Total.	Above.	Below.	Percent. above.
1909 Report	395	313	82	79.3
1910 Report	340	291	49	85.6
1911 Report	263	224	39	85.1
1912 Report	298	235	63	78.8
1913 Report	382	264	118	69.1
1914 Report	286	221	65	77.2
1915 Report	133	98	35	73.6
1916 Report	214	156	58	72.9
1917 Report	172	147	25	85.3
1918 Report	131	113	18	86.8

Last year practically none of the averages ran below standard. This year only aconite root, hyoscyamus and stramonium leaves ran below standard but only very slightly below. The general yearly average 86.8%, is the best yet recorded and is a very satisfactory indication that the general quality of drugs on the market is excellent, in spite of war conditions.

Reported by G. E'WE.

Committee
- CHARLES E. VANDERKLEED,
- CHARLES H. LAWALL,
- O. W. OSTERLUND,
- J. G. ROBERTS, *Chairman.*

CORRESPONDENCE

EXPRESSES APPRECIATION OF THE JOURNAL.

FAJARDO, PORTO RICO,
JULY 16, 1918.

MR. W. B. DAY,
GENERAL SECT. OF THE AMERICAN PHARM. ASSOCIATION,
701 S. WOOD ST., CHICAGO, ILL.

MY DEAR MR. DAY:

At the kind invitation of my friend and fellow pharmacist, Mr. Rudolph Wirth, of the firm E. Fougera & Co. of New York, I take the liberty of soliciting admission as a member of the American Pharmaceutical Association, enclosing herewith postal money order for $5.00 in payment of rights for one year, including subscription to the JOURNAL. Mr. Wirth has been so kind as to send me a copy of the June number of the JOURNAL, and I can assure you that same was a most agreeable surprise, said JOURNAL being new to me; in my estimation it is an ideal aid to pharmacists who like myself are obliged to live distanced from scientific centers and institutions, where new methods are obtained, and where a better knowledge of the profession can be facilitated. The literature comprised in this JOURNAL is excellent, being instructive and interesting to a degree, being really a monthly conference, demonstrating scientifically and practically the highest methods of technics, high pharmacy and chemistry, and in fact to all that which directly pertains to pharmaceutical science.

The petitioner is a graduate in pharmacy of the New York College of Pharmacy, class of 1902, having had four years' practice in the City of New York, first as a pharmacist of the Roosevelt Hospital, and afterwards with the corporation of Hegeman & Co.; since 1906 have resided in Porto Rico, where I am established with my father, Dr. Jose A. Veve, in the drug business. Also the petitioner holds a license of the New York Board of Pharmacy.

Considering your consent and aid on this occasion a premium of inestimable value, I beg to remain,

Very respectfully yours,
(SGD.) MIGUELL A. VEVE, PH.C.

EDITOR, JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

Why is it that when one writes a prescription thus:

℞ Strontii Bromidi	℥i
(Specified brand)	
Tr. Cardam Comp.	
Tr. Nucis Vom.	aa *f*℥i
Aquae q. s.	ad *f*℥iii

the druggist calls you up to say that you have a 3-ounce mixture without the water! Or worse yet, that when you write

℞ Strontii Bromidi	℥iv
(Specified brand)	
Elix. Aromat.	*f*℥i
Aquae qs.	ad *f*℥ii

the druggist dispenses 1/2 fluid ounce of a *solution* instead of the 1/2 ounce of salt you have written for. These things happen constantly.

I do not give the name of the specified brand in this letter for obvious reasons. But why should it make any difference to a druggist who knows how to read a prescription? And how can I guard myself and my patients against the careless druggist? Surely ℥ iv is not *f*℥ iv and Strontii Bromidi is not Liquor Strontii Bromidi!

Yours truly,
S. SOLIS COHEN, M.D.

In answering Doctor Cohen it was stated, that a pharmacist should and usually does understand the difference between a fluid ounce and an ounce by weight.

One part of strontium bromide is soluble in 0.35 part of water, and 60 grains of the salt dissolved in 60 minims of water produce practically a volume of 100 minims. Or, if one ounce of the salt is dissolved in $4^1/_2$ fluidrachms of water about one fluid ounce of liquid results.

The brand of the salt has nothing to do with the case. It is a matter which requires an explanation from the compounder. Evidently there has been a recurrence of the error and on request of Doctor Cohen we are printing his letter and the substance of our reply.

RESOLUTIONS PASSED AT THE ANNUAL CONVENTION OF THE INTERNATIONAL ASSOCIATION OF ROTARY CLUBS IN THE INTEREST OF PHARMACEUTICAL CORPS IN THE ARMY AND NAVY.

WHEREAS, We believe that one of the most important duties devolving upon the governmental authorities is to provide to the utmost for the conservation of the lives and health of the American soldiers, who, sacrificing the comforts of home, are jeopardizing their all for the principles for which the nation is contending, and as our loved ones, and as the soldiers of our country, they are certainly entitled to the very best medical and surgical skill and to expert pharmaceutical service. It is deplorable that in the United States Army medicines are continuously dispensed by those who are unfitted for such duty and who lack a systematic education in the knowledge of drugs and the art of compounding medicines.

WHEREAS, While in civil life each state protects its citizens from incompetent practice, and by law provides for the required experience, education, examination and licensure of those entrusted with the dispensing of medicines, nevertheless the military authorities of the nation ignore the necessity for a like protection for the soldiers and permit potent, and even the most toxic drugs, to be dispensed by incompetent men without any pharmaceutical experience or education. To continue such practice is to continue to invite calamities and to perpetually expose those in the military service to untoward accidents and untimely deaths.

WHEREAS, It is regrettable that the United States with its progressive spirit and commanding position and its enormous resources should in this respect be found lagging and to have a medical department of the army not fully abreast with medical departments of the armies of other nations. In the armies of France, Germany, Austria, Japan, Italy, Spain, Belgium, Holland, Switzerland, Norway, Sweden, and in the colonial armies of Australia and Canada, there are organized pharmaceutical corps with recognized commissions and responsibilities aiding ably the medical officers in safeguarding the troops in these armies. The United States, that can well afford to give to the men in her military service the best, should not do less than these other nations; yet we have, at present, no pharmaceutical corps in either the army or navy.

Therefore, It is Resolved by the Ninth Annual Convention of the International Association of Rotary Clubs, that the establishment of a pharmaceutical corps in the United States Army as proposed by Bill H. R. No. 5531, introduced by Hon. George W. Edmonds of Philadelphia, and now pending before the Committee on Military Affairs of the House of Representatives, be endorsed. We urge that the medical department of the army be speedily reorganized to permit of this needed additional safeguard to our soldiers, and to guarantee to the men in the military service the same efficient pharmaceutical service that the States assure in civil life and that is now so generally vouchsafed to the armies of most of the other nations.

RECOGNITION OF PHARMACY.

An editorial in the *Pennsylvania Medical Journal* for June reads in part as follows:

"Practically every state of the Union has a law which provides that those who furnish drugs to the public shall be qualified for this professional work. In our Army, the hospital steward who dispenses the medicines ordered by the physician for the sick soldier is detailed from the ranks without requirement of pharmaceutical training.

"To remedy this defect and thus increase the efficiency of the Medical Department of the Army, it is proposed to establish a Pharmaceutical Corps. As is the case with the Dental Corps, the Sanitary Corps and the Ambulance Corps, this corps is to be under the command of the Surgeon-General of the Army.

"To provide for this recognition of pharmacy, Representative Edmonds of Pennsylvania last July introduced into the House of Representatives a bill to increase the efficiency of the Army, to provide a Pharmaceutical Corps in that department, and to improve the status and efficiency of the pharmacists of the Army."

Then follows a synopsis of the Bill and part of the concluding statements of the editorial are:

"It goes without saying that the efficiency of the Medical Department will be increased if trained and experienced pharmacists purchase (or manufacture), test and dispense the drugs selected and prescribed by the medical men. Also, though the pharmacist is not trained to render medical aid nor, except in isolated instances, to do chemical or bacteriological work, his familiarity with drugs should make him of considerable assistance 'in rendering first aid in wound treatment and the making of diagnostic and chemical tests.' The provision 'to establish and maintain a systematic course of study,' for those seeking promotion, follows the example set by the Army in establishing the Army Medical School, of the Navy in establishing the Naval Medical School and of the United States Public Health Service in providing courses of instruction to the men in the service and should do much to elevate the status of pharmacy.

"Altogether the establishment of a Pharmaceutical Corps, through the enactment of the Edmonds Bill or some similar measure, should make for greater efficiency in the Medical Department of the Army. Further, the commercial training of the pharmacist should also make for economy."

A PHARMACEUTICAL CORPS FOR THE ARMY.

An editorial in the *Missouri State Medical Journal* for July reads:

"The present world war is stopping the onward march of civilization in many directions; it is even forcing disorganized retreat that will require decades to recover. But, on the other hand, the stress is making science, arts and industry accomplish a ten-year advance in one year.

"In the United States it is bringing about a realization that the time of isolation with untold possibilities is past, and that the life of the individual and of the nation must be patterned so as to permit competition with the wide world. One result is that abuses and wrongs which in peace would have taken a decade of legislation to correct, are now adjusted in a single session of Congress.

"In former days, the surgeon's apprentice handed out to his master's patients the desired decoctions and boluses; a similar situation exists today in the Medical Department of the Army, which is forced to depend on untrained men to perform the services that in private life the professionally trained pharmacist is required to perform. However, the cry for still greater efficiency in the Medical Department of the Army gives promise that ere long a corps of professionally trained pharmacists will be placed under the command of Surgeon-General Gorgas."

Then follows a synopsis of the Edmond's Bill.

SULPHUR INDUSTRY TAKEN OVER BY THE GOVERNMENT.

The sulphur industry of the United States passed into Government control July 9. Production and distribution of the mineral will, with the approval of the President, be administered by the War Industries Board. The action was necessitated by the increased war demands for sulphur as an ingredient in explosives, and by the increasing burdens of the rail and water systems in transportation of war materials.

A. E. Wells, consulting engineer of the War Department, has stated that it would be possible to develop a comparatively swift source of supply by the thiogen process of reclaiming sulphur from the smelter fumes, and that it would be possible to erect two plants with a capacity of 500 tons a day to come into operation within a few months.

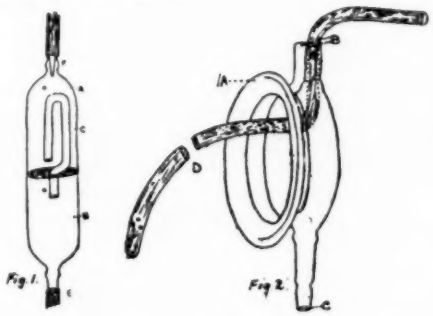
Present sources of sulphur supply are from two mines: one in Louisiana, producing over 3,500 tons of sulphur a day, and another in Texas, producing in excess of 1,000 tons a day. Minor properties in Nevada, Utah and Wyoming produce about sixty tons a day combined. Present sulphur consumption in the United States exceeds 125,000 tons per month, and Mr. Wells has stated that this will increase to over 150,000 tons per month before the end of the year, due to increased Government use.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.
Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*
Editorial Office: 253 Bourse Building, Philadelphia, Pa.

AIDS IN THE USE OF DAKIN-CARREL TREATMENT.

Dr. Max Bornstein, of Milwaukee, Wis., describes a glass automatic siphon for delivering a definite amount of fluid to a wound at a definite period of time, in *Journal A. M. A.*, June 15, 1918, p. 1820. The apparatus is shown in Figure 1; the periodicity of flushing is regulated by a Hoffman pinch-cock on the tubing between the solution tank and the apparatus. Two bells (*A* and *B*) annealed one to the other are connected by a siphon tube (*C*). A drip point is annealed into the upper end of the upper chamber. Both chambers have air vents.



The apparatus works as follows: Solution from an irrigating bottle or bag is allowed to pass a pinch-cock at a fixed rate. It accumulates in the upper chamber until it reaches the highest point of the siphon, when it suddenly is emptied by the siphon into the lower chamber. Here, by virtue of its height and its weight, it forces its way through the holes in the Carrel tube and flushes the wound. The flushing is periodic and eliminates the inconstant human element which is so often the cause of failure in the Dakin-Carrel technic.

Doctor Bornstein (First Lieutenant, M. R. C., U. S. Army) also has devised a suction drainage bell for applying Dakin-Carrel treatment in empyema, and is described in the same issue. This apparatus, Figure 2, consists of a flattened bell of glass, resting on a wide flange (*A*), where it comes in contact with the skin around the wound opening. At the upper end of one diameter are two small tubular openings (*B*), for transmitting the usual Carrel tube into the wound cavity. One of these may be used for flushing the bell and for cleansing. On the opposite side is a large tubular opening (*C*) for carrying off drainage, by means of a rubber tube into a waxed or rubber bag. Also, to this latter opening may be applied vacuum suction in empyema cavities by connecting with a vacuum water suction pump. The apparatus is held in position by a rubber dam fitted on the flange and by adhesive. By its use one can save large quantities of dressings, a very important item. It prevents secondary contamination of the wound, and permits instillation of neutral solution of chlorinated soda. It allows for drainage which seeps out beside the Carrel tube; and in the urinary bladder, it does away with the constant overflow of foul smelling urine. In empyema it permits the use of negative pressure to expand the lung and hastens obliterations of the empyema cavity. A Furniss rubber empyema spool is a valuable aid. It is made of glass; can be removed easily for cleansing and boiling, and can be easily reapplied.

PARAFFIN PAPER AS A SURGICAL DRESSING.

Charles M. Harpster, Ph.G., M.D., of Toledo, Ohio, writing in the *Journal A. M. A.*, June 8, 1918, p. 1763, states that paraffin paper will be found an excellent dressing for burns or any other condition in which a non-adherent dressing is desirable. It is far superior to the paraffin dressing of burns by the spray method, is much more easily and rapidly applied, results in more rapid healing of the burned surface, and is more easily removed.

In the first stage of burns, when there is great pain, the various ointments now in use can be applied directly to the paraffin paper and this applied to the burned area after all vesicles have been opened. It has the advantage of excluding the air, which relieves

the pain of the burns, and it is readily removed at the time of redressing, leaving the developing granulations unaltered.

The first dressing of pure petrolatum on paraffin paper, is applied directly to the burn, and over this a layer of cotton and the usual bandage. As the paper is impervious to moisture, the serum that seeps from the injury runs away from the raw surface, and is absorbed by the outer dressings beyond the injury. There is no sticking to the burn or other wounds, when the dressings are removed. Experience has proved that dressings once in two or three days are sufficient in most cases. Certain cases, however, may require more frequent dressings.

Paper bandages, which are now being universally used, perhaps more through necessity than choice, have been found to work well in certain dry dressings. But the thought arose, what a great saving could be accomplished if they could be used on moist dressings or dressings in which there is considerable oozing or drainage. Here again, the paraffin paper can be utilized as a barrier between the moist dressings and the paper bandage. It has the desired effect of keeping the moisture inside the dressing, and prevents the paper bandage from becoming wet and tearing easily.

Dr. Harpster concludes the article by saying that an attempt is being made to have sterile packages of the paper put up and, that to an extent, the paper will replace oiled silk and rubber tissue, especially if a heavier coating of paraffin can be applied to the paper.

SKIN CANCER.

The *New Orleans Medical and Surgical Journal* states that perhaps the most frequent excitant of all causes, so far as skin cancer is concerned, is dandruff. If falls from the scalp, and lights on the ear, eyelids, nose, neck, lips and face, and if there is already a scaling spot, or a thickening, or a wart, a mole, or a gland ready to receive the dandruff scale, it sets this spot alive with activity and it goes on to form a skin cancer. Probably 60 percent of skin cancers are due to this cause, and many a cancer has been prevented and may be prevented by curing the dandruff or by preventing it.

INSOLUBILITY OF SOFT GELATIN CAPSULES.

Dr. F. W. Dershimer, director of the work of the International Health Board in British Guiana, reports on experiments showing that soft capsules are relatively insoluble in the stomach. Comparative experiments were also made with hard capsules which proved that these completely dissolved in an acidified pepsin solution in twenty-one minutes, while the soft capsules similarly treated showed no signs of dissolving beyond slight softening after twenty-four hours. The experiments on which the reports are based were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation. The article is printed in the *Journal A. M. A.*, for November 3, 1917, p. 1508. It would seem that this is a subject for further investigation.

PROTECTION AGAINST MUSTARD GAS.

Protection against any of the gases now in use by the Germans is given to American soldiers by the masks now being worn. Statements that American masks do not protect soldiers from the effects of mustard gas are not warranted, according to an official statement from the Chemical Welfare Section authorized by the War Department.

The masks now worn will protect soldiers as long as they are required to remain in areas drenched by gas. The clothing worn by the soldiers will resist the effects of the gas for a normal period. As an added precaution, the soldiers are now provided with a neutralizing ointment to be rubbed on those parts of the body where mustard gas is likely to penetrate through the clothes.

OFFICIAL NAMES FOR LICENSED DRUGS.

Prof. Julius Stieglitz, chairman of the Subcommittee on Synthetic Drugs, National Research Council, on behalf of the committee, urges the use of the official names of licensed drugs, and if the proprietary brand name is to be used to place this side by side with the official name. The official names so far adopted by the Federal Trade Commission are:

Arsphenamine for the drug marketed as Salvarsan, Diarsenol and Arsenobenzol, etc.

Neoarsphenamine for the drug marketed as Neosalvarsan, Neodiarsenol and Novarsenobenzol, etc.

Barbital for the drug marketed as Veronal.

Barbital-Sodium for the drug marketed as Medinal and Veronal-Sodium.

Procaine for the drug marketed as Novocaine.

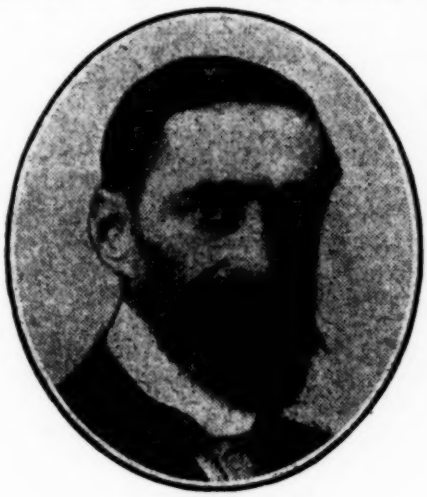
Procaine Nitrate for the drug marketed as Novocaine Nitrate.

Phenylcinchoninic Acid for the drug marketed as Atophan.

AMERICAN CASTOR OIL.

According to Government reports the biggest castor oil mill in the world will be in operation this month at Gainesville, Fla. Reports from Florida are fully up to expectations and Texas will have a yield as large as has been counted upon.

W. S. Glynn-Jones, M. P., has been elected Secretary of the Pharmaceutical Society of



W. S. GLYNN-JONES

Great Britain. Mr. Glynn-Jones was elected member of the House of Commons in 1910. He is the author of "The Law of Poisons and Pharmacy," and has been active in British legislation relating to pharmacy.

William Kirkby, elected president of the British Pharmaceutical Conference, is the son of a pharmacist and obtained his degree of pharmaceutical chemist in 1882. In 1886 he became associated with Jewsbury and Brown.

WILLIAM KIRKBY
New President British Pharmaceutical Conference

He has been active in pharmaceutical affairs of Great Britain and is well known for his work in historical research.

Charles H. LaWall, president-elect of the American Pharmaceutical Association, has been invited to become a member of an Advisory Board to the Division of Medical Industry.

OBITUARY.

CHARLES FORD DARE.

Charles F. Dare, engaged in the drug business in Bridgeton, N. J., since 1872, died May 16, 1918. The deceased was born in Bridgeton, May 19, 1842, and the funeral services were held on the anniversary day of his birth.

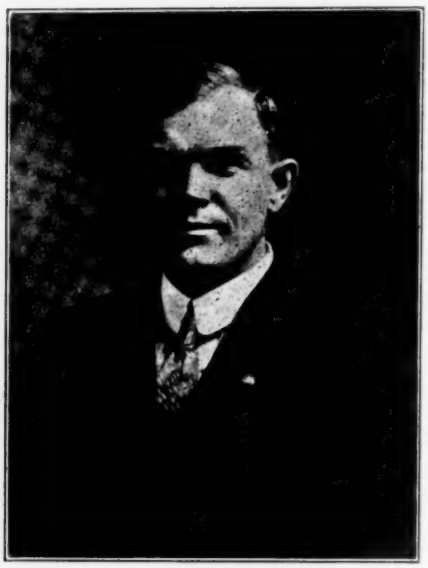
Mr. Dare graduated March 1861, from the Philadelphia College of Pharmacy; this same year he entered the service as hospital steward and served in that capacity to the end of the Civil War. On his retirement from the Army he entered the employ of Edwin F. Brewster, and in 1872 engaged in business on his own account. For a number of years his son Charles W. has been a member of the firm.

Mr. Dare was a director of the Bridgeton National Bank, secretary of the Merchants and Mechanics Building and Loan Association. He was member and officer in the First

Presbyterian Church of Bridgeton and affiliated with the Masonic bodies and Odd Fellows. He joined the New Jersey Pharmaceutical Association in 1874, was secretary for several years and its president in 1895. He became a member of the American Pharmaceutical Association in 1889. One son and a daughter survive the deceased.

GEORGE D. TIMMONS.

George Deming Timmons, descendant of a long line of Scotch-Irish ancestors, was born on August 10, 1867, in Warren County, Indiana. After receiving his early training in Green Hill Seminary, he taught in the public schools from 1884 to 1895. He married Mary Alice Sayers in 1888 and to them were born five children, four of whom are living. The mother of these children died in 1904. Mr. Timmons was married to Mrs. Cecilia Spurbeck in 1905. They had one daughter.



GEORGE D. TIMMONS

Mr. Timmons entered Valparaiso University in 1895, was graduated with honors in the Pharmacy class of 1897, appointed assistant Professor of Chemistry and Pharmacy, from which position he was elected Head of the Department of Chemistry in 1909 and Dean of the Department of Pharmacy in 1912. During this time he attended the University of Chicago, doing post-graduate work under Alexander Smith, with whom he continued a cordial relationship.

Under Mr. Timmons' leadership the School of Pharmacy became one of the most important and most completely organized and equipped departments of the University. His acquaintance with members of his profession, his activity to place the School of which he was Dean among the most efficient in the country, a constant and conscientious endeavor to be loyal to the best interests of the students, the University, the ethics of his chosen work, and the spirit of his subject, made of him a distinct personality.

Mr. Timmons published in 1914, "Experiments in General Chemistry I and II," and in 1917 "Qualitative Chemical Analysis." At the time of his death he was engaged in gathering data for a further publication.

An active member of the American Pharmaceutical Association and of the American Chemical Society, and for four terms a member of the Valparaiso City Council, he continually made himself felt as a factor in the life of his community and his profession.

Since May Mr. Timmons had been in the offices of the Eli Lilly Company of Indianapolis, filling a position made vacant by the draft. Following a week's illness with typhoid fever, he died July 18th, at the Methodist Hospital in Indianapolis. Services were held in the Auditorium of Valparaiso University at Valparaiso, interment being made in Graceland Cemetery.

E. H. WISNER.

John Frederick Kutchbaugh, member of the A. Ph. A. for a number of years, and veteran druggist of Northside, Cincinnati, Ohio, died June 22, aged 62 years. Resolutions of sympathy were prepared by a committee composed of J. Fred Zuenkeler, Charles T. P. Fennel, Theodore D. Wetterstroem, Louis Werner, Sr., and submitted by Secretary Charles A. Apmeyer, of the Cincinnati Branch, A. Ph. A. Mr. Kutchbaugh conducted a pharmacy at Blue Rock and Lakeman Streets for thirty years and was previously engaged in the drug business in Dayton, Ohio. He participated actively in association work and was a graduate of the Cincinnati College of Pharmacy. He is survived by a daughter and one son, who is in service in the Motor Truck Division.

SOCIETIES AND COLLEGES.

THE CHICAGO CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

This issue of the JOURNAL will reach the homes of the members during Convention Week, and it is to be hoped many will be in attendance as there is much important work that requires attention.

Whatever the attendance may be, the thanks of the Association are due the pharmaceutical publications for the splendid publicity given by them. While such expression will be given in resolutions we desire to take this opportunity of making such record of appreciation. Many who are usually in attendance will be absent and doubtless for good and sufficient reasons. All, however, have been impressed with the importance of the meeting.

FOURTH NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES.

The Fourth National Exposition of Chemical Industries will be held in the Grand Central Palace, New York, during the week of September 23. The coming Exposition will be the largest Chemical Exposition ever held and it will be necessary to use four floors of the Grand Central Palace. The amount of floor space already engaged is greater than last year so the managers say the exhibits will be much more attractive and a movement is under way to show all exhibits of machinery in operation under actual working conditions as they would be found in the field. The products of the chemicals manufactured and as they enter into the world's commerce will be there as examples of what the chemist has produced in America since the world war began.

SYLLABUS COMMITTEE.

BULLETIN XVIII.

The Committee will meet at the headquarters hotel during the meeting of the American Pharmaceutical Association in Chicago, in the week beginning August 12, 1918. The exact time and place will be announced by the Chairman and Secretary.

It is expected that the three sub-committees will submit the revision of their several sections of the present Syllabus for consideration and adoption by the whole committee, after any necessary changes are made.

The Chairman has been collecting suggestions and material for the proposed third year course and will present the results as a basis for the preparation of this addition to the Syllabus.

The programme of the meeting will be as follows:

I. Roll-call.
II. Report of the Chairman.
III. Report of the Secretary-Treasurer.
IV. Report of the Sub-Committee on Materia Medica, H. H. Rusby, *Chairman.*
V. Report of the Sub-Committee on Chemistry, J. A. Koch, *Chairman.*
VI. Report of the Sub-Committee on Pharmacy, W. H. Rudder, *Chairman.*
VII. Discussion of the proposed addition to the Syllabus, covering a third year of study, leading to the degree of Pharmaceutical Chemist.
VIII. Miscellaneous business.
IX. Adjournment.

Signed, THEODORE J. BRADLEY, *Chairman.*

BOSTON, July 25, 1918.

THE ANNUAL CONVENTION OF THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS.

The appeals for attending the meetings of associations apply with equal force to that of the National Association of Retail Druggists. Never before in the history of the country have so many problems confronted the retail druggists and by conferring together benefit will accrue to all of them. We use the words of President W. H. Cousins:

"To-day, as never before, druggists should stand together in the unstinted support of their local, state and national organizations. Your craft and your country need you, and you can serve your country best through co-operating with your craft. Every industry in America feels the tightening tentacles of the monster war; every industry in America is making its sacrifices.

"Will any craft make sacrifices more readily or more willingly than the men trained in the science of pharmacy? We say 'No,' a thousand times no! This is no time for idle words. There is work to do that requires grim determination, backbone and hearts of oak.

"On behalf of the National Association of Retail Druggists, we urge every druggist in America to do not only his bit, but his best for the organizations whose missions in the world are for the betterment of the conditions of our calling—thus serving our government to the best possible advantage."

THE NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION.

The regular monthly meetings of the National Pharmaceutical Service Association held throughout the winter in Philadelphia expanded during the last month into many centers of activity where State associations were gathered. The Edmonds Bill, for which the N. P. S. A. is working hard, was again approved through strong resolutions at practically every State Association meeting held during the last six weeks. In many places petitions were signed and forwarded to the President of the United States, Secretary of War, and the Surgeon-General of the Army, and to Congress, and in Pennsylvania and New Jersey, similar petitions have been circulated to all members of the State Associations with the request that they secure signatures of the parents of the men in the service, of physicians, and other prominent men in the community, urging upon Congress the passage of suitable legislation for the establishment of a pharmaceutical corps.

One encouraging development has been the active advocacy of the Edmonds Bill by the *Pennsylvania Medical Journal*.[1] Everyone who is interested in this legislation should try to secure the support of physicians, the large majority of whom are entirely in harmony with the efforts of this association, knowing well the importance of pharmaceutical help and recognizing the need for the use of all resources of the country, which are available for helping the Medical Service. Another encouraging development has been the support given the Edmonds Bill by the Rotary Clubs of the country, not only in many local organizations, but at the recent Convention of the International Association of Rotary Clubs, resolutions were passed and forwarded to the officials at Washington, strongly urging the establishment of a pharmaceutical corps in the Army and Navy.

Those who are impressed with the importance of securing this kind of service for the men in the Army, can help by securing the interest of citizens, especially those who are not pharmacists, to prove the disinterested character of our claim. They should send letters and signed petitions, urging this legislation. Anyone who is willing to help in this way should correspond at once with the Secretary, E. Fullerton Cook, 145 N. Tenth Street, Philadelphia, Pa.

When confronted with the question, "What can be the help of a Pharmaceutical Corps in the American Army?" let us point with pride and with hope to the splendid work being done to-day in France by the Marines and also in our Navy. Here the Chief Pharmacists, over 200 of whom have been advanced since the war began, to the rank of Junior Lieutenant, are doing the very work which we advocate for the Pharmaceutical Corps in the Army, and are doing it exceptionally well. This fact should answer conclusively the claim that the Army cannot use pharmacists. It is true these men have had special training in the needs of the service; they know how to take care of the medical stores, to look after the sanitation of the camp, to dispense needed medicines, and act as general superintendents for the hospitals, but this same training can be given to graduate pharmacists in the Army, and Navy. Doctors admit that graduate pharmacists respond to the training more quickly, and produce, as a class, a better type of men than any others who enlist.

[1] Also the *Missouri State Medical Journal*.—Editor.

THE NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION CHARGED WITH "CONSPIRACY" BY THE FEDERAL TRADE COMMISSION.

The Federal Trade Commission, on June 29, served complaint against the National Wholesale Druggists' Association, alleging that it has reason to believe, and charges on information and belief, that the respondents are, and for more than two years last past have been wrongfully and unlawfully engaged in a combination or conspiracy among themselves, with the intent, purpose and effect of discouraging, stifling and suppressing competition in interstate commerce in the wholesale drug trade of the United States.

The complaint further charges that the aforesaid combination and conspiracy to induce or compel manufacturers of drugs and druggists sundries, to refuse to sell them as such or to discriminate in price against them, have been effected and carried out by various means, among them the following: By verbal and written notices to manufacturers that certain customers or prospective customers were not entitled to recognition, as so-called regular or legitimate jobbers; by the appointment of committees to confer with said manufac-

turers or owners, for the purpose of influencing said manufacturers to adopt sales methods in harmony with the policies of the National Wholesale Druggists' Association; by written and verbal notices given by the secretary of the National Wholesale Drugggists' Association to said manufacturers that said competitors who are not members of said association are selling below the net price named by manufacturers for resale; by the compilation and distribution among manufacturers and wholesalers of lists of so-called legitimate jobbers; by bringing influence to bear on various local associations of drug jobbers and wholesalers to adopt policies in harmony with the policies of the National Wholesale Druggists' Association.

The predominant issue seems to involve questions concerning resale prices and may bring about a definite understanding of the law on the subject. We concur with the *Paint, Oil and Drug Reporter* in saying:

"We do not believe—particularly in view of the character of the men named in the N. W. D. A. citation, and of the complete and self-sacrificing coöperation by this branch of the pharmaceutical industry with the Government in all war activities—that there has been any attempt on the part of the Association to evade any statute law of the United States."

SCHLOTTERBECK MEMORIAL PORTRAIT.

At the Fiftieth Anniversary of the Michigan University College of Pharmacy, the presentation of the Schlotterbeck Memorial Portrait was one of the features. Also at this time Dean A. B. Stevens was pleasantly surprised by the Alumni, who presented him with a fine engraved gold watch.

RECRUITING FOR Y. M. C. A.

Manufacturers and wholesalers in the New York drug trade have been asked to assist in the recruiting of the four thousand Y. M. C. A. workers requested by General Pershing to go to France and look after the needs of the American Army there. An informal committee of the drug industry, comprising Dr. Wm. J. Schieffelin, Sanders Norvell, F. E. Holliday, Henry S. Livingston and Franklin Black decided to make an appeal to those manufacturing and wholesale houses who have salesmen on the road, asking them to designate one of their travellers for the overseas work.

Travelling men are specified in this letter, because of the intimate touch they acquire with human nature, as well as other qualifications which might be expected to fit them for the work. They are not particularly designated in General Pershing's request, and any man who can meet the mental, moral and physical requirements is desired.

STATE PHARMACEUTICAL ASSOCIATIONS.

OFFICERS FOR 1918–1919.

CONNECTICUT.

President, Carl S. Ramsey, New Britain (re-elected).

First Vice-President, Chas. T. Hull, New Haven.

Second Vice-President, Semion S. Nelson, Hartford.

Secretary-Treasurer, P. J. Garvin, Bethel (re-elected).

DELAWARE.

President, W. B. Jester, Delaware City.

Vice-Presidents, George W. Rhoades, Newark; Walter Keys, Smyrna; R. N. Kauffman, Seaford.

Treasurer, Oscar C. Draper, Wilmington.

Secretary, Nora V. Brendle, Wilmington.

Executive Committee, W. B. Jester, J. M. Tarvey, Erdman Hoffman, Harry Worrell and R. H. Leesome.

FLORIDA.

President, Marshall Rize, Tampa.

Vice-Presidents, J. S. Jewett, Lakeland, Roy N. Chelf, Brooksville, and T. H. Lander, Bradentown.

Secretary-Treasurer, J. H. Haughton, Palatka.

Executive Committee, W. D. Jones, Jacksonville; W. A. Rawls, Pensacola; M. M. Taylor, Tampa.

GEORGIA.

President, Dr. T. F. Burbank, Cedartown.

Vice-Presidents, W. T. Knight, Savannah; D. G. Wise, Atlanta; and R. E. Perry, Sylvia.

Secretary, T. A. Cheatham, Macon.

Treasurer, T. C. Marshall, Atlanta.

Tybee Island was chosen as the permanent meeting place.

IDAHO.

President, A. E. Sutton, Caldwell.

First Vice-President, Thomas Poole, Nampa.

Second Vice-President, Roscoe Smith, Boise.

Secretary, Norman C. Beckley, Boise.

Treasurer, C. W. Isenburg, Ashton.

IOWA.

President, T. M. Watts, Holstein.

Vice-Presidents, J. G. Becker, Dubuque; George Judisch, Ames; and P. W. Dowd, Guthrie Center.

Secretary, Al Falkenhainer, Algona; *Membership Secretary*, H. E. Eaton, Des Moines.

Treasurer, J. M. Lindly, Winfield.

INDIANA.

President, E. W. Stucky.

Vice-President, W. A. Oren.

Secretary, Wm. R. Werner (re-elected).

Treasurer, Frank H. Carter (re-elected).

One Executive Committeeman, B. M. Keene.

MAINE.

President, Frank H. Neal, Fairfield.

First Vice-President, E. F. Carswell, Gorham.

Second Vice-President, C. F. Cox, Bath.

Third Vice-President, S. I. White, Houlton.

Treasurer, A. W. Meserve, Kennebunk.

Secretary, Dr. M. D. Porter, Danforth.

MASSACHUSETTS.

President, Clifford P. Thompson, Springfield.

Vice-Presidents, Charles C. Hearn, Quincy; Alfred J. H. Paquette, Lynn; J. K. Mullarkey, Framingham.

Treasurer, James F. Finneran, Boston.

Secretary, James F. Guerin, Worcester.

MICHIGAN.

President, J. H. Webster, Detroit.

Vice-Presidents, Lee Chandler, Charlotte; and P. C. Brooks, Houghton.

Secretary, Frank J. Wheaton, Jackson.

Treasurer, Francis B. Drolet, of Kalamazoo.

Members of the Executive Committee, Geo. H. Grommet and E. W. Austin, Midland.

NEW JERSEY.

President, George M. Beringer, Jr., Camden.

First Vice-President, Louis L. Staehle, Newark.

Second Vice-President, Charles A. Bye, Lakewood.

Treasurer, Edgar R. Sparks, Burlington.

Secretary, Jeannot Hostmann, Hoboken.

Board of Trustees, Harry W. Crooks, Frank C. Eckert, E. T. N. Stein, Luke C. Hines and H. W. Holzhauer.

The next meeting will be held at Atlantic City in June 1919.

NEW YORK.

President, Henry B. Smith, Brooklyn.

First Vice-President, Robert S. Lehman, New York.

Second Vice-President, O. B. Chapman, Richfield Springs.

Third Vice-President, Walter B. Tongue, Poughkeepsie.

Secretary, Edward S. Dawson, Syracuse.

Treasurer, Frank Richardson, Cambridge.

Executive Committee, Charles N. Lehman, Tottenville; Pincus Hertz, New York; and Herbert Wright, Syracuse.

PENNSYLVANIA.

President, Charles R. Rhodes, Hyndman.

First Vice-President, Ambrose Hunsberger, Philadelphia.

Second Vice-Preisdent, James F. Kane, Pittston.

Secretary, Robert P. Fischelis, Philadelphia.

Treasurer, Francis H. E. Gleim, Lebanon.

Assistant Secretary, Louis Saalbach, Pittsburgh.

Local Secretary, C. Lyston Jones, Easton.

Executive Committee, W. H. Knoepfel, for 3 years.

Next meeting Forest Park, Pa., 4th week of June 1919, unless Executive Committee makes other arrangements prior to January 1, 1919.

WEST VIRGINIA.

President, Roy B. Cook, Huntington.

First Vice-President, John W. Davis, Wheeling.

Second Vice-President, John A. Fitch, Charleston.

Secretary, P. H. Kelly, Thurmond.

Treasurer, G. H. Dent, Morgantown.

WISCONSIN.

President, A. F. Wussow, Milwaukee.

First Vice-President, C. B. Curran, Eau Claire.

Second Vice-President, A. F. B. Mentzel, Milwaukee.

Third Vice-President, L. Urheim, Eau Claire.

Secretary, Edw. G. Raeuber, Milwaukee.

Treasurer, Henry Rollman, Chilton.

The 1919 convention will be held in Eau Claire, the last week in June.

UTAH.

President, John L. Boyden, Coalville.

First Vice-President, Frank J. Folland, Salt Lake City.

Second Vice-President, Chas. E. Driver, Ogden.

Treasurer, Geo. A. Huscher, Murray.

Secretary, Eugene L. Wade, Salt Lake City.

THE PHARMACIST AND THE LAW.

VENEREAL DISEASE ACT OF ONTARIO.

The Act for the Prevention of Venereal Diseases passed by the Ontario Legislature, came into force July 1. It provides that anyone publishing in a newspaper, magazine or other periodical, or posting up any statement or advertisement intended to recommend the purchase of any article, medicine, appliance, instrument or treatment for the alleviation or cure of venereal disease is liable to a fine of from $100 to $500.

It permits the filling of prescriptions, of regular medical practitioners, by pharmacists and the selling of patent or other proprietary medicines for the cure or alleviation of venereal diseases, provided that these remedies have been approved by the regulations of the Act.

The following remedies are approved by the Board named in the Act (Sec. 13) by the Legislature of Ontario:

For Gonorrhea: Silver, iodine, mercury, potassium, zinc, lead, and other mild astringents in their various forms. Essential oils, alkalies, balsams, and hexamethylene-tetramine.

For Syphilis: The arseno-benzol derivatives administered intravenously. Mercury in its various forms administered orally, intramuscularly and by inunction. The iodides, administered orally. The use of tonics, good food and life in the fresh air. The latter is essential to successful treatment.

For Chancroid: Carbolic acid, alcohol, silver salts, antiseptic dressings.

None of these remedies nor any other remedy, form of treatment, appliance, instrument or medicine, patent, proprietary or otherwise, shall be sold, offered for sale, recommended, suggested, advertised or promoted by anyone as a treatment for venereal or genito-urinary disease, unless such remedy, medicine, treatment, appliance of instrument is prescribed by a legally qualified practitioner.

VENEREAL DISEASE REGULATIONS.

Regulations for adoption by State Boards of Health for the prevention of venereal disease have been suggested by the United States Public Health Service. They provide for registering all cases and quarantine if necessary for protection of public health. One section forbids druggists to prescribe treatment and reads as follows:

Rule 6.—Druggists forbidden to prescribe for venereal disease.—No druggist or other person not a physician licensed under the laws of the state shall prescribe or recommend to any person any drugs, medicines or other substances to be used for the cure or alleviation of gonorrhea, syphilis, or chancroid, or shall compound any drugs or medicines for said purpose from any written formula or order not written for the person for whom the drugs or medicines are compounded and not signed by a physician licensed under the laws of the state.

NARCOTIC NEWS.

Federal Judge Dickinson, Philadelphia, a few weeks ago sentenced seventeen drug peddlers. The sentences ranged from eighteen months to two years.

Several important arrests have recently been made in St. Louis and Baltimore. Morphine, cocaine and heroin, to the value of $10,000, were seized by Federal officers in a raid upon the rooms of Frank Krissler, a confidential clerk in the employ of the Adams Express Co., who lived on Jefferson Street, Hoboken, N. J. The drugs were bottled and it is believed that they were stolen from shipments to the Army Medical Department.

BOOK NOTICES AND REVIEWS.

Pharmaceutical Botany. By Heber W. Youngken, Ph.G., A.M., M.S., Ph.D. Second Edition, Revised and Enlarged with 195 Illustrations. Publishers P. Blakiston's Son & Co. Philadelphia. Price, $2.00, cloth.

The degrees earned by the author of "Pharmaceutical Botany" indicate his experience in pharmacy, and his studious application in pharmacy, pharmacognosy and botany is shown in the preparation of the book. Thoroughness is evident and also a desire to communicate information relative to the subject that is necessary and will be serviceable for pharmacists. Extensive detailed studies of the structures of individual drugs have not been attempted, but more by giving a type; the book supplies knowledge of structural botany; the systematic arrangement is excellent and the text is characterized by succinctness and clearness in definitions

and descriptions. The volume has 386 pages which present essential information of pharmacognosy and botany that a pharmacist should have for an intelligent understanding of the official vegetable materia medica. The first edition of the book was prepared to meet the needs of students in pharmacy and in the revision and enlargement the same purpose has been kept in mind; while, therefore, especially adapted for students, pharmacists will find the book of interesting usefulness. Professor Youngken is professor of botany and pharmacognosy in the Philadelphia College of Pharmacy.

PUBLICATIONS RECEIVED.

The Pharmacist's Place, by J. U. Lloyd, reprint from *Electic Medical Journal*, 1887.

An American Crusade, a phase of the evolution of American Medicine and Pharmacy in the struggle against transplanted European cruelty, J. U. Lloyd. We reprint the concluding paragraph: "Lastly, while we accept that there is no man without the mote in his eye, may we not hope that one and all, regardless of medical politics, may realize that practicing physicians and educated pharmacists, not less than the leaders in both medicine and pharmacy, are allies in a progressive humanitarian cause; the differences of opinion are justified by distinctions in education, opportunities and location, but that all are alike working toward a common end—the upiift of humanity?"

Courses in Applied Science, an announcement of the Philadelphia College of Pharmacy.

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